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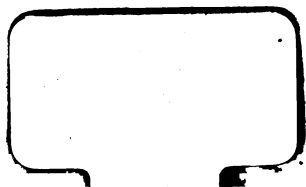
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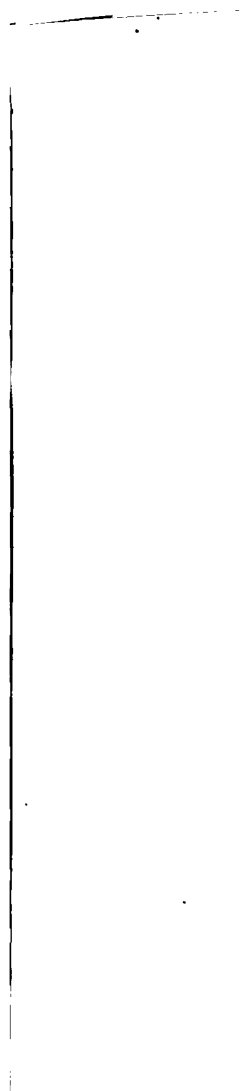
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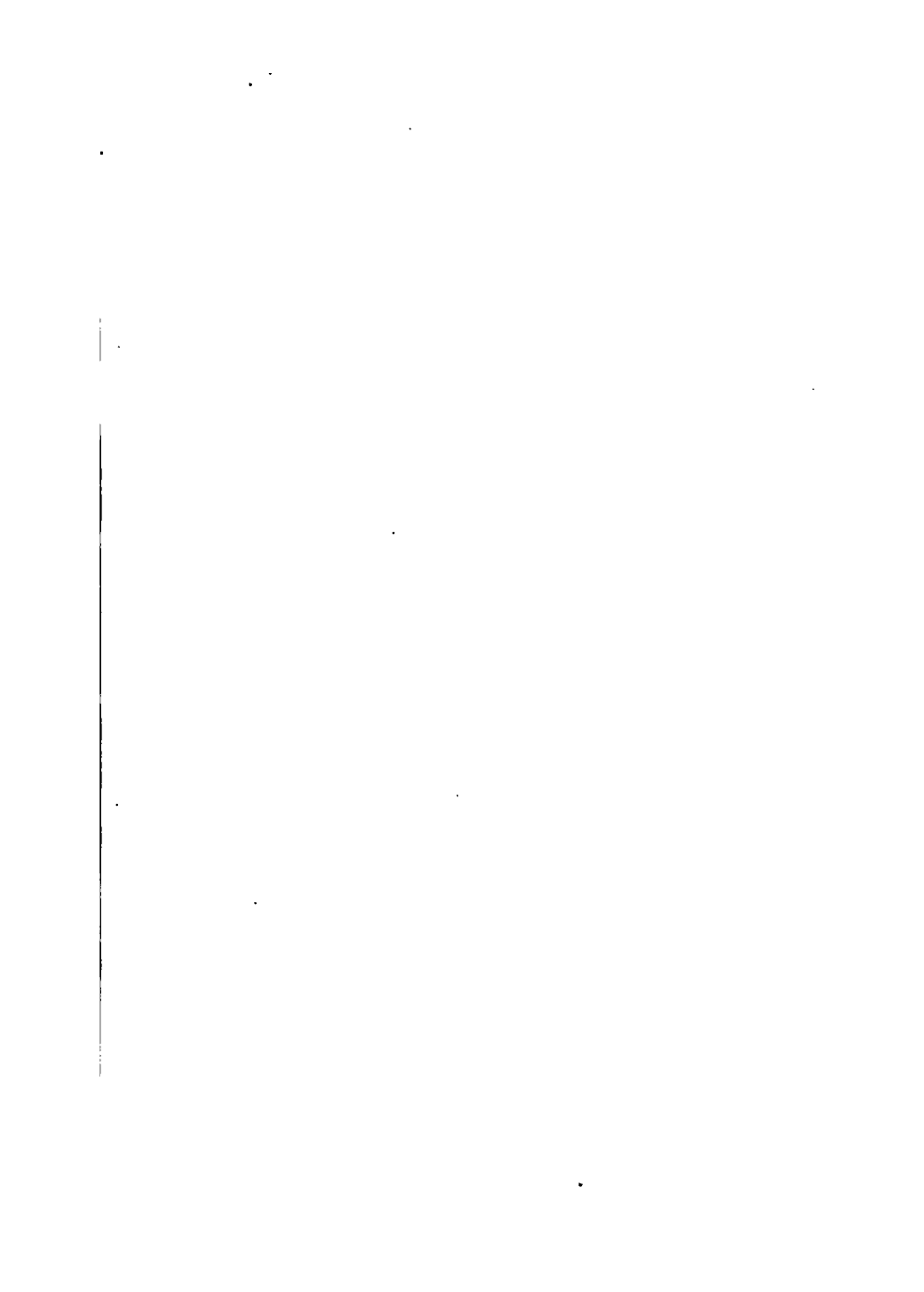
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The Royal School Series.



DOMESTIC ECONOMY:

A CLASS-BOOK FOR GIRLS.

NEW EDITION.

by Mrs S. S. Wigley.



LONDON:

T. NELSON AND SONS, PATERNOSTER ROW;
EDINBURGH; AND NEW YORK.

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PREFACE.

THIS Work is arranged in Three Parts, corresponding with the three years' course in the "Specific Subjects" Schedule of the Education Code. The use of the book, however, need not be restricted to schools. It may profitably be put into the hands of those who are already engaged in domestic work, whether daughters or mothers, mistresses or maids.

Scientific details and technical terms have, as far as possible, been avoided, as the book aims at being a popular exposition of the subject. At the same time the strict accuracy of its scientific statements may be relied on, as it has been carefully revised by an eminent physiologist.

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DOMESTIC ECONOMY.

PART I.

1.—INTRODUCTION.

1. FIRST let us understand what Domestic Economy means. "Domestic" comes from *domus*, a home or family. "Economy" comes from *oikos*, a house; and *nomos*, law, or management. These words together mean, "the management of the family house or home."

Domestic Economy is the science which teaches the right management of the family home.

2. The rightful home manager is a woman. On her the family depend for the food, clothing, cleanliness, and comfort necessary to health; and for the good nursing necessary in sickness. This science, which belongs specially to the education of girls, is of more importance than all the other arts and sciences put together. From well-managed homes go forth happy, healthy, wise, and good men and women, to fill every position in the world.

3. If a country were made up of such homes, it would be a nation healthy and happy, noble and

good, wise and prosperous. The influence and power of girls are, therefore, enormous. *They* have more to do with success or failure, happiness or misery, than statesmen, philanthropists, and clergymen.

4. The object of this book is to help them in the acquirement of this their own most important science. Every girl who wishes to do her part towards making the world healthier, happier, wiser, and better, must study this science with a thankful sense of her own high mission.

5. The wisest man thus speaks of a good home manager : "She bringeth food from afar; she giveth meat to her household : she seeketh wool and flax, and worketh willingly with her hands ; she is not afraid of snow, for her household they are clothed : she looketh well to their ways : her children rise up and call her blessed : her husband praiseth her : she will do him good, and not evil, all the days of his life."

QUESTIONS.—1. From what is "domestic" derived? From what is "economy"? The meaning of the two words together? Define "Domestic Economy". 2. Who is the rightful home manager? For what do the family depend on her? Why is domestic economy so important? 3. What would a country made up of such homes be? Whose influence is, therefore, enormous? 4. What is the object of this book? 5. What does the wisest man say of a good home manager?

2.—FOOD: WHAT IT HAS TO DO.

1. THE work of those who manage the home has to do with food and clothing, pure air and cleanliness, with health and sickness, with earning and spending and saving. First, let us consider what food has to do towards keeping the body healthy.

First, The Body must be kept warm, with a warmth

that comes from within.—When this inside warmth ceases, the body dies; no fire and no clothing can bring it back to life. There is bitter cold in Lapland, and sultry heat in India; but the warmth of the body must be kept at the same temperature in both places. If it becomes too hot, it causes fever; if it becomes too cold, the blood may freeze.

2. In cold countries, something must keep up the inside heat; in hot countries, something must cool down the outside warmth. Both things are done by the food we eat. It supplies solid fuel to make warmth inside, and moisture to cool superfluous heat outside. By the evaporation of moisture from the skin, the body is cooled, and its temperature kept equal.

Food keeps up a regular heat in the body.

3. And depending on this heat in the body are its power and force. A steam-engine cannot move of itself,—the power must be put into it; and this power is stored up in the black coal with which we feed it. Stop its food,—put out its fire,—and no machine will work. Just so in the body. Stop your food, and the fire will go out; and when you become cold, you are powerless. All your force and power are stored up in the food you eat.

Food supplies force.

4. *Second, The Body must be kept in repair.*—The strength and actual material of all substances become lessened by use. The strongest building wears away in time even by the action of the air upon it. The body is always in wear, yet it does not wear out, in ordinary circumstances, till old age. When it is torn or cut, the repairs are done from within.

5. Something keeps on working within the body, supplying the daily waste, and making the needful repairs. What is it? This is the work of the food we eat. It furnishes the proper flesh-making and strength-giving material to keep every part, even damaged places, in proper repair.

Food makes flesh and tissue.

6. *Third, The Bones and Joints of the Body must be renewed and made strong.*—An iron joint will wear away both itself and the socket in which it is fixed. Every movable part of the body is a joint fixed in a socket. What keeps them from becoming rickety and loose, or from falling out? This also is the work of the food we eat. It supplies the body with exactly the materials the bones want, to keep them strong and to help them to grow.

Food supplies material for bones and joints.

QUESTIONS.—1. With what has the home manager to do? What is the first thing to be attended to, that the body may be kept in health? If the inside warmth ceases, what then? What happens when the body becomes too hot? What may happen if it become too cold? 2. What is it necessary to do in cold countries? And in hot countries? By what are these things done? 3. What is further necessary to the body? How are these supplied? 4. What is the second thing to be attended to, that the body may be kept healthy? What effect has use on all substances? Give an example. Why does the body, though always in wear, not wear out? 5. By what is the repairing done? 6. What is the third thing necessary to a healthy body? What does every movable part of the body resemble?

3.—FOOD: THE THREE HANDMAIDS.

1. FOOD, then, has three chief matters or duties to attend to in the body, each one entirely different

from the others. There is but one food so mixed in its quality that it can perform all these duties by itself. That one food is milk. We cannot all have milk; so, as we do not find the necessary foods ready mixed for us in one substance, we must mix them for ourselves.

2. Physiologists, who study the uses of every part of the body, have found that one kind of food alone will not support life except for a short time. They have tried experiments on animals, and have found that those kept entirely without food have lived nearly as long as those fed on one kind of food alone. They have also discovered that there is a particular kind of food which is best suited to do each particular kind of work. Thus there are three principal kinds of food, each of which does its own special work and also supplies force. These are :—

3. *First, Warmth-giving Foods.*—The foods best adapted to create warmth are those which contain starch, fat, and sugar. Those substances in which these three things are found create warmth, and do nothing else.

4. *Second, Flesh-forming Foods.*—The foods which make flesh and give strength are those which contain either fibrine, gluten, albumen, casein, or gelatine. These substances are chiefly found in meat, grain, eggs, and milk.

5. *Third, Bone-making Foods.*—The bone-making materials are found in the mineral properties of water, in common salt, in certain soda-like ashes found in vegetables, and in fresh fruits.

6. The body requires twice as much warmth-giving food as it does of flesh-forming, and only about a quarter as much of bone-making food.

7. Any kind of food taken in excess does mischief. It cannot be used by the body, and either remains to cause pain and disease, or is thrown off by sickness and various eruptions of the skin.

QUESTIONS.—1. What are the uses of the different kinds of food? What is the only food that will do all these things? What must we do since we cannot get all our food ready mixed? 2. How has it been proved that three sorts of food are necessary? What was the effect of only one sort of food on animals? 3. Which are the warmth-giving foods? Can these substances do anything else for us? 4. How many kinds of flesh-forming, strength-giving food are there? 5. By what food are the bone-makers introduced? Of what do they consist? 6. Give the requisite proportions of the various kinds of foods. 7. What is the consequence of taking any sort of food in excess?

4.—FOOD: RESPIRATORY (Warmth-giving).

1. In almost all solid substances there is a certain part that will burn. This part capable of burning is the same thing in all, no matter how different the substances seem to be. The name of this burning part is **carbon**. It forms the principal part in coal, in charcoal, and in diamonds. The starch foods, fat, and sugar, contain more carbon than other foods, therefore they are called **Carbonaceous foods**.

2. The air we breathe is made of oxygen and nitrogen gases. Oxygen is the gas that makes things burn. If enough oxygen gas is brought to bear upon the carbon in any substance, the carbon will consume or burn away under the action of the gas. The carbon, when burnt, unites with the oxygen of the air to form a gas called *carbonic acid*.

We partake of carbon in our food, and we breathe the oxygen in the air: the carbon we eat consumes or burns away under the influence of the oxygen we breathe, and the two combined give out heat without flame or smoke. Carbonaceous foods are consumed by breathing, or by respiration,—they are therefore called **Respiratory foods**.

3. The warmth-giving foods are called **Carbonaceous or Respiratory**. They consist chiefly of *starch*, *fat*, and *sugar*.

(1.) **Starch Foods**.—Starch is found in all the grain plants, as wheat, rice, maize; also in potatoes, pease, and beans.

(2.) **Fat**.—Fat is found in both animal and vegetable productions. We have it in flesh, fish, milk, butter, and cheese; also in the oily part of cocoa, and in some vegetables.

(3.) **Sugar**.—Sugar is chiefly found in the vegetable foods. We extract it from the sugar-cane, the sugar-maple, and the beet-root. It is present in milk. We find it in some fruits, as figs and grapes, and in small proportions in many other vegetable substances.

4. Starch foods are called *farinaceous*, because they contain farina. Fatty foods are called *oleaginous*, because they contain oil. Sugar foods are called *saccharine*, because they are sweet.

QUESTIONS.—1. What do almost all solid substances contain? Which foods contain most carbon? What are they called because of this? 2. Of what is the air we breathe composed? What becomes of carbon under the influence of oxygen? What other name is given to the carbonaceous foods? Why? 3. Which are the carbonaceous foods? From what are starch foods obtained? Where do we find oily or fatty foods? Whence do we obtain sugar? 4. What is the meaning of "farinaceous," "oleaginous," and "saccharine"?

5.—FOOD: NITROGENOUS (Flesh-forming).

1. ALL the flesh-forming foods contain a great deal of nitrogen,—another kind of gas which we must talk about by-and-by. From this they are called **Nitrogenous**. The nitrogenous foods are those which contain either of the five substances already mentioned:—

2. (1.) **Fibrine**.—Fibrine is the fibre of the flesh of animals. It is found in all flesh foods, whether of meat, fish, game, or poultry.

3. (2.) **Gluten**.—Gluten is a sticky substance found inside the outer husks of the grain plants. When all the husk, or bran, is carefully removed from these grains, in the preparation of meal or flour, the greater part of the gluten is removed with it.

4. (3.) **Albumen**.—Albumen is a substance identical with the pure white of eggs. It is found in eggs, and in all kinds of flesh food, but in small proportions in fish.

5. (4.) **Casein**.—Casein is the solid part or curd of milk; it constitutes the chief part of cheese. Chemists have found out that *Legumin*—a substance largely found in pease and beans—is of the same character, and quite as nutritive as the casein of milk.

6. (5.) **Gelatine**.—Gelatine is the jelly-like substance which is procured from bones, from fish, and from isinglass—a substance which is made from the air-bladders of fish. Gelatine is the least nutritive of the flesh-forming foods.

7. Some foods contain in *some* proportion all the properties of good food, but they do not contain a

sufficient proportion of each. A pound and three quarters of bread contains enough warmth-giving food for a man for one day, but it does not contain half enough gluten, or flesh-forming food; so that if a man eats enough of bread to get gluten sufficient to keep up his strength, he eats too much of that which makes warmth, and the surplus is not only wasted, but does harm.

QUESTIONS.—1. Which foods contain nitrogen? What are they called because of this? 2. What is fibrine? What foods produce it? 3. Where is gluten found? What is it? Why is bread made from the entire grain of the wheat more nutritious than that which is finely dressed or sifted? 4. What is albumen? What foods contain it? 5. What is casein? Where is it found? 6. What is gelatine? What is said of its nutritive properties? 7. Why is it necessary that we should study the right proportion of the various kinds of food we need?

6.—FOOD: MINERAL (Bone-making).

1. THE proportion of mineral food necessary to health is much smaller than either the warmth-giving or the flesh-forming and strength-giving foods. It has been said that all model food should contain these proportions:—

1 oz. of flesh-forming substance.

2 oz. of warmth-giving substance.

$\frac{1}{2}$ oz. of mineral substance, combined with 22 oz. of water.

2. Mineral or bone-making food is found in *water* from springs, rivers, or lakes, in common *salt*, and in fresh *vegetables*.

(1.) *Water*.—The mineral properties of water are easily discovered in a kettle in which hard water has been boiled. The boiling throws down the mineral from the water, and it settles on the sides and bottom

of the kettle in stony flakes, which are called *fur*. Water absorbs its mineral substances from the soil through which it passes, such as salts of lime, iron, potash, &c.

(2.) **Common Salt** is useful for its mineral properties, and also because it creates a necessary desire for drink or moisture. It acts upon the blood, and prevents disease. Salt has the power of preserving meat, and it does a similar thing in the body. Fearful diseases have arisen when salt has been denied. Living things multiply within the body, and begin to devour it, causing pain, and ultimately death.

(3.) **Fresh Vegetables.**—Potash and soda are found in the root or tuber vegetables, as potatoes, carrots, &c.; in green succulent vegetables, as greens, water-cress, &c.; and in the grain plants, as wheat, barley, &c.

3. These minerals are most important in their effect on the blood. At one time our sailors used to suffer greatly from "scurvy,"—a disease of the blood brought on by the absence of mineral food. It was found out that the use of fresh vegetables cured the disease. Preparations of lemon-juice and lime-water contain the same properties as fresh vegetables, and no ship is now allowed to go to sea without taking a supply of these liquids.

4. The various minerals introduced into the body by these foods are salt, soda, potash, and lime.

QUESTIONS.—1. Give the proportion in each kind of food in a model meal. 2. From what sources are bone-making or mineral foods obtained? What are the principal minerals found in water? How do they get into it? How can you discover whether water is very hard, or has much mineral matter in it? Why is salt useful? What is the

effect of depriving the body of salt? What vegetables contain potash and soda? 3. Why did sailors suffer from scurvy at one time? What cure for the disease was discovered? What are all ships now obliged to take to sea? 4. Which are the principal minerals found in food?

7.—FOOD: ITS MACHINERY.

1. BEFORE our food can be utilized by the body, it must be converted into a fluid—it has to be introduced into, and mixed with, the blood. What changes it? The body has machinery of its own, which undertakes to reduce, extract, and convey the needful supplies to its various parts.

2. You have heard of the laboratory of the chemist, where he works all sorts of wonders? By the use of acids and salts, he dissolves the hardest metals, and changes them into something quite different, to be put to an altogether different use. The body is like a laboratory, where all sorts of chemical changes are being worked on the food we eat.

3. There are certain little organs in various parts of the body, which are made up of small cells and tubes. They are called **glands**. The cells contain some powerful fluid,—sometimes an acid, and sometimes an alkali. These fluids flow down the tubes and act upon the food, helping to reduce it to a liquid state. The cells are no sooner emptied than they begin to fill again, ready for the next call made on them.

4. There are glands in the mouth, which pour out saliva or spittle. This moistens the food, and forms it into a pasty mass; but it also turns all

starchy foods into sugar, to enable them readily to mix or dissolve in the blood. You know starchy and floury things will not mix in water without boiling, they will settle at the bottom.

5. There are glands in the stomach, containing an acid called **Gastric Juice**. This has the power of reducing all the albumen, fibrine, casein, &c., to a fluid; and there are glands in the liver and sweetbread, and in many other parts of the body besides, each with its own particular kind of juice. All these glands pour out the contents of their cells on the food as it passes by them, and make it more and more liquid,—thin enough to flow through the tiniest blood-vessel in any part of the body.

QUESTIONS.—1. What change must take place in our food before the body can use it? 2. Why is the body like the laboratory of a chemist? 3. What are glands? What do they contain? 4. Of what use are the glands in the mouth? 5. What do the glands in the stomach contain? What power does that juice possess?

8.—FOOD: ITS MACHINERY—(Continued).

1. Now, let us go over the principal changes which the food has to undergo in the process of being converted into liquid nourishment.

When the food is put into the mouth, the teeth commence grinding and pulping it, while the saliva pours on it from the mouth-glands, moistening it and changing the starchy matter into sugar. When it has been thoroughly pulped, it is collected at the back of the throat and swallowed, or sent down the gullet.

2. It is now passed into the stomach, which is a

large bag lined with a beautiful pink lining, full of innumerable tiny openings, which are the mouths of the tubes through which the gastric juice must flow. All round the stomach are sinews or fibres which expand and contract, each set running a different way.

3. As soon as the food enters the stomach these fibres begin to work, and by the movement thus made it gets churned over and over and round and round; and every time it touches the sides of the stomach, the little cells empty out upon it the precious juice or acid, which turns it into a gray liquid about as thick as gruel, which is called **Chyme**. The gastric juice changes chiefly the flesh-forming foods.

4. The chyme then passes into the bowel, where the bile from the liver, which contains a good deal of potash or soda, acts upon the fat, and causes it to unite with the blood, and also helps the juice from the pancreas, or sweet-bread, to make the mixture still thinner. It is now a milky fluid called **Chyle**, only the liquid now contains real nourishment. Those parts that will not reduce are passed along the bowel as waste.

5. Lining the intestines, and contained in minute projections, like the *pile* of velvet, called *villi*, are numerous little vessels known as **Lacteals**, which suck up part of the chyle and pass it onward into a larger pipe, by which it is conveyed into a great vein at the bottom of the neck on the left side. The small blood-vessels of the bowel also absorb matters from the chyle, and carry these to the liver.

6. When the chyle is poured into this vein, it becomes mixed with and forms part of the blood. The blood is carried to the *right* side of the heart, and from it sent through the lungs, where it becomes warmer and is freed from impurities; and then passing back from the lungs to the *left* side of the heart, it is by it propelled through numerous vessels called *arteries*, to every part of the body. This, however, is not done quickly; for time must be allowed to enable each part to extract its proper nourishment. Through the smaller vessels, called *capillaries*, the blood travels at the rate of about an inch in a minute, and in this time each part of the body absorbs its own particular food. The blood returns from the capillaries to the heart by the *veins*.

QUESTIONS.—1. What change is made on the food in the mouth? 2. Where does the food then pass? What are the small openings in the lining of the stomach? 3. What is the liquid called into which the gastric juice turns food? 4. Where does the chyme then pass? What change does it there undergo? What is the milky fluid called? What part only contains real nourishment? 5. What vessels absorb this liquid? What do they do with the chyle? 6. When the chyle enters the great vein, of what does it become part? How is it warmed? How is it conveyed to the various parts of the body? At what rate does the blood flow through the capillaries?

9.—FOOD: ITS MACHINERY—(Continued).

1. How wonderful and complicated is the machinery which does this work of conveying the nourishment through the body! What guides it? What tells it where to stop and what to unload?

2. Dr. Edwards has thus written about it:—

“All along the tubes or canals through which the

blood flows, God has provided numbers of little waiters, or organs, each of whom takes out of the blood, as it flows slowly by, the nourishment it needs for its own support, and also for the support of that part of the body committed to its care. For instance, the organs placed at the ends of the fingers, when the blood comes there, take out of it what they need for their support, and also what is needed to make finger nails; while they will refuse to take that which will only make hair, and let it go on to the head.

3. "And the organs of the head carefully take out that which they need for their support, and also that which will make the hair to grow; while they, in their turn, reject that which is good for nothing except to make eye-balls, and let it pass on to the eyes—nay, they will even send it on. And the organs about the eyes will take what the head has rejected, and work it up into eyes. And so the work goes on through the whole body."

4. Let us go over the work again.

(1.) The food is masticated by the **teeth**, and softened and changed chemically by the fluids of the **glands**.

(2.) It is mixed with **gastric juice** in the **stomach**, and formed into a fluid called **chyme**.

(3.) It is further liquefied by fluids from the **liver**, **sweet-bread**, and numerous little glands in the **bowel**.

(4.) The fluid, which is now called **chyle**, is absorbed by the **lacteals** and carried into the **blood**.

(5.) It is warmed and no doubt chemically altered in passing through the **lungs**.

(6.) It is conveyed as blood all over the **body**.

(7.) The refuse of the food is thrown away.

5. Remember—the food must be rendered tender by cooking, and then thoroughly masticated in the mouth; there are no teeth in the stomach to do the chewing.

QUESTIONS.—1. How can the body appropriate all it needs from the blood? 2. What has been provided to take the nourishment from the blood as it circulates? In what wonderful way does each set of organs appropriate only its own nourishment? 3. What different things are made by the food we eat? 4. What is the first thing done to the food, and by what instruments? The second? The third? The fourth? The fifth? The sixth? 5. Why must the teeth thoroughly do their work?

10.—FOOD: ITS SOURCES.

1. We shall now consider the sources whence food is obtained.

FIRST, Sources of Animal Food.—The chief kinds of animal food are mutton, beef, veal, lamb, venison, pork, game and poultry, and fish.

2. *Mutton*, the flesh of the sheep, is tender; and being very easily digested, it is the best meat for children and invalids.

3. *Beef*, the flesh of the ox, though full of nourishment, is not so tender as mutton. The flesh of cows and bulls when sold for food is very tough and tastes strong.

4. *Veal* and *lamb*, like all young meats, are not so nourishing or so well-flavoured as the flesh of full-grown animals; but they are tender, sweet, and light. Veal is not easily digested by many stomachs; perhaps because it contains in excess a gelatinous sort of flesh.

5. *Venison*, the flesh of the deer, contains the

same good qualities as mutton: it is tender and easily digested.

6. *Pork* and *bacon* are the flesh of the pig. Pork is too rich to be often desirable; and bacon, though good in small quantities, introduces too much salt into the blood when it is the *only* animal food eaten.

7. *Game* consists of wild animals, principally hares, rabbits, pheasants, partridges, grouse, and woodcock.

8. *Poultry*.—The commonest kinds of poultry are fowls, ducks, geese, turkeys, and pigeons. At one time game and poultry were beyond the reach of poor people, but now, when butcher-meat is so dear, the rarer is as easily procured as the commoner. Eggs are light and nourishing, if not cooked too much.

9. *Fish*.—The fish foods consist chiefly of salmon, cod, mackerel, whiting, herring, sole, turbot, and plaice: besides these, there are many kinds of fresh-water fish. Fishes with scales are more wholesome than those which have none. The fresher fish is when eaten, the more nourishing it is.

10. The commoner sorts of fish contain more real nourishment than the more expensive. Herrings contain too much fibrine, but salmon has quite one quarter of its weight in oil or fat. A person must eat more fish than meat to get the same amount of nourishment, because a large proportion of the bulk consists only of water. The fibre of the flesh is the really strength-giving part of meat.

QUESTIONS.—1. From what animals do we obtain our flesh foods? 2. What do we call the flesh of the sheep? What is its character? 3. What is the flesh of the ox called? In what is mutton superior to beef? 4. What is said of all young meats? 5. What is venison?

6. What are the objections to pork and to bacon? 7. What do you mean by game? 8. Why is it a good thing to have poultry cheap? 9. Which are the principal fish used for food? What fishes are considered the most wholesome? 10. Compare salmon and herrings. Why is more of fish necessary to supply our wants than of butcher-meat?

11.—FOOD: ITS SOURCES—(Continued).

1. **SECOND, Sources of Starch Food.**—The chief starch foods are wheat, barley, oats, rye; rice, maize, sago, tapioca, arrowroot.

2. *Wheat.*—From wheat we obtain flour for bread. The finest and whitest flour does not contain so much nourishment as the “seconds” or “thirds;” for these retain some of the husks, where the gluten is found. Macaroni and vermicelli are made from wheaten dough in which the white of egg has been mixed. For macaroni, it is pressed into moulds; and for vermicelli, it is drawn through a sieve, and then dried in an oven. Both are used in making milk-puddings and for soups.

3. *Barley, oats, rye.*—All these grains were formerly used for bread. Now we find barley-bread and oat-cake only in the north. Rye-bread is still used in some countries. In Sweden rye-cakes are baked only twice a year, and they get so hard that they need to be broken with a hatchet and well soaked before they can be eaten! Oatmeal is used for porridge and for gruel.

4. *Rice* is obtained from a grass-like plant which grows in India, China, and America. It needs so much water that the rice-fields have to be flooded by artificial means. Two crops can be raised in one year.

5. *Maize*, or Indian corn, gives us our various kinds of corn-flour. It sometimes grows wild in its native country, America, where it is also largely cultivated. The grain is used in every stage of its growth as an article of food.

6. *Sago* is obtained from the pith of a palm-tree which grows in India. The pith is rubbed through a sieve into little grains and then dried.

7. *Tapioca* is procured from the root of the cassava plant, which grows in South America. The juice of the root is poisonous. When it is placed in the sun or over a fire the juice evaporates, leaving a white powder behind, from which tapioca is made.

8. *Arrowroot* also is procured from the root of an American plant in the same way as tapioca.

QUESTIONS.—1. Name the chief starch foods. 2. What do we obtain from wheat? What kinds of flour contain most nourishment? Why? Name two preparations of wheaten dough. 3. Where only are barley-bread and oat-cake now used? Where is rye-bread used? For what is oat-meal used? 4. Whence is rice obtained? How are the rice-fields watered? 5. What does maize give us? What is its native country? 6. What is sago? How is it prepared? 7. Whence is tapioca got? What is remarkable about the juice? 8. Whence is arrowroot got?

12.—FOOD: ITS SOURCES—(Continued).

1. **THIRD, Sources of Oleaginous Foods.**—*Milk* is the most important of these. It yields us cream and butter, as well as cheese, which contains a large amount of fatty matter in addition to casein.

2. We get fat from both animal and vegetable food. It is the most readily-consumed heat-giver, because it contains the largest proportion of carbon. Just as fat burns soonest outside the body, so it

consumes soonest inside. Sugar and starch take a long time to consume,—fat begins to consume *at once*. Besides being a heat-giver, it makes the limbs round and plump, it forms a pad or cushion for all parts subject to pressure, and it keeps the joints oiled and the muscles supple. When the breathing-organs are out of order, and easily-consumed food is necessary to save them work, doctors often prescribe fat for medicine, as cod-liver oil.

3. *Vegetables*.—Our principal vegetables are the tubers or roots, and green succulent vegetables. Among the tubers are the potato, turnip, carrot, parsnip, and radish. Of these the potato is the most important. It was introduced into Europe from America about three hundred years ago, though it did not at once become a favourite food. The principal green vegetables are cabbage, lettuce, spinach, water-cress, cauliflower, and broccoli. Thoroughly ripe fruits are wholesome and beneficial.

4. **FOURTH, Sources of Saccharine Foods.**—Sugar is a substance obtained by the evaporation of the sap or juice of certain plants. It is found in the sugar-cane, in a species of maple-tree, in beet-root, in milk; and in smaller proportions in cereals, as in wheat.

5. *Sugar-canes* are tall plants, having all their leaves in a bunch at the top, with the flower in the middle. When the canes are ripe the leaves die away. They are then cut down, and the juice is crushed out in a mill, and all the moisture is evaporated by frequent boiling. The sugar is cleansed, drained, and dried, before it can be used. The drainings from sugar are called treacle.

6. The sap is procured from the sugar-maple by inserting little grooved sticks into slits made in the bark. The sap trickles down the sticks into vessels prepared to receive it.

QUESTIONS.—1. What is our principal oleaginous food? What forms of it yield us oil or fat? 2. What other sources yield us fat? Wherein does it differ from other heat-juices? What other uses does it serve? 3. Which are the principal tubers? When was the potato first introduced into Europe? Whence? What green vegetables are used for food? What is said of ripe fruits? 4. How do we obtain sugar? Which source yields most? 5. Describe the sugar-cane. 6. How is the sap procured from the sugar-maple?

13.—FOOD: ITS PURCHASE.

1. PEOPLE have learned to mix the different kinds of foods without exactly knowing why they do so. These are common mixtures which are perfectly right in the substances chosen :—

Bread and cheese.....	{ Bread—starch; warmth-giving. Cheese—casein; flesh-forming.
Bread and meat.....	{ Bread—the starch; warmth-giving. Meat—the fibrine; flesh-forming.
Rice and other starch puddings.....	{ Rice, sago—the starch; warmth-giving. Milk and eggs—casein and albumen; flesh-forming.
Bacon and pork with pease or beans.....	{ Bacon and pork—the fat; warmth-giving. Pease or beans—legumin; flesh-forming.
Bacon and eggs.....	{ Bacon—the fat; warmth-giving. Eggs—the albumen; flesh-forming.
Liver and bacon.....	{ Bacon—the fat; warmth-giving. Liver—albumen; flesh-forming.

2. The addition of vegetables gives the mineral food needed. It is necessary that all good managers should know how to select the best sorts of meat, fish, and vegetables.

3. **Meat.**—This is none the worse for being a day or two old, according to the time of the year: it keeps good longest in cold weather. The flesh of newly killed healthy animals adheres firmly to the bones, is of a deep red colour, and contains a mixture of fat and lean, which gives it a mottled appearance. The juice of the flesh should be a dark claret colour; and the flesh should be firm, not flabby. It should be springy under the pressure of the finger.

4. **Fish.**—It is difficult to obtain fish that are perfectly fresh in the inland counties, as they should be eaten as soon as possible after they have been caught. In choosing fish, see that the gills are a bright red, and the scales fresh-looking. The surest test is the smell; for dealers have been known to colour the gills of stale fish, in order to deceive. If a fish smells pure and sweet, it cannot be very stale.

5. **Vegetables.**—The tubers, as potatoes and turnips, will keep good many months after they have been removed from the earth. Green vegetables should, if possible, grow till you have the water boiling in which to put them. It is easy to discover when they are faded and withered, by their colour; for instead of being greens they become browns.

QUESTIONS.—1. Why is bread and cheese a good food-mixture? Bread and meat? Bacon and greens? Pork and beans? Bacon and eggs? Liver and bacon? What is the value of the various ingredients of a rice pudding, as regards nourishment? 2. What gives the mineral food needed? 3. What will a clever market-woman look to in choosing meat? 4. What are the tests for discovering if fish be stale? Why is it unwise only to depend on the look of the fish? 5. Which vegetables keep good when stored? What is the great advantage of having our own garden?

14.—FOOD: HINTS AND HELPS.

1. ANY clever girl can make herself acquainted with the way to prepare particular dishes, now that good cookery books are so cheap, and schools of cookery are so common. A few hints are all we can give here, besides noticing the various ways of cooking.

2. A good cook should have skill enough to present every article of food in a tender and palatable form, without having caused an atom of waste in its nutritive properties; and that form of preparation is most desirable which best accomplishes this end.

3. Albumen, as it exists in flesh, has the same property under the influence of heat that it is so well known to have in an egg. It hardens,—you know how an egg hardens or sets with a few minutes' boiling. When albumen becomes hard, it also becomes indigestible; because, being tough, it gives the stomach undue work to reduce it.

4. The old method of cooking taught us never to put meat *at once* before a good fire in roasting, and always to put it into cold water for boiling. Now we have not by any means discovered all there is to learn about cooking, and we find that by gradually warming the meat we certainly help to keep the albumen tender, but we also allow the nourishment of the flesh to *drip out* in roasting, and to *soak out* in boiling. To remedy this evil, and keep the gravy in, cooks dredged the roasting joint with flour; and those who got the brown got the best of it,—but, alas! the brown was *the least* of it too.

5. But science aiding experience has found a better way. Here it is : Albumen will harden with heat, therefore *harden the albumen outside the joint only, and let it form a case to keep in the nourishment.* So now cooks subject the joint at once to the strong heat of a good fire, or plunge it into boiling water, for about five minutes. That is time enough to harden the albumen. Then they move back the roasting, or draw off the boiling joint, and allow it to cook very gently and gradually. The old principle of slow cooking to insure tenderness is still in force, but it is not acted on until the retention of the nutriment has been secured in the manner described.

QUESTIONS.—1. How may any clever girl learn how to cook particular dishes? 2. What should a good cook have skill enough to do? 3. What effect does heat produce on albumen? What does albumen become when it hardens? 4. What was the old method of keeping the albumen tender? What was its disadvantage? 5. What is the rule of scientific cookery? How do cooks apply it?

15.—FOOD: HINTS AND HELPS—(Continued).

1. PEOPLE of other nations say that the English are the worst and most wasteful cooks in the world. This ought not to be so. We are clever enough, and energetic enough, and fond enough of comfort and good things, if only we were thoughtful and careful enough to do everything as well as other people.

2. The French are the best cooks. They can make a dainty dish out of almost anything. Very many of them live entirely on such things as we

throw away. They use and make the most of everything that comes to hand.

3. We sometimes look with contempt when some of their dishes are mentioned. Why should we do so? We do not live to eat,—we eat to live. And now that butcher meat is so dear as to put a joint almost out of the reach of poor people, surely it behoves all who will have to manage homes to learn thankfully from any one what will be best to put in its place.

4. We must never forget that a certain quantity of mixed food is necessary to keep us in health. When it is in our power, we should provide that which is nicest and most easily digested. None of the flesh-formers are so easy of digestion as albumen; but if albumen cannot be had, then we must be content with fibrine, gluten, or casein.

5. The French peasantry almost live on what the English know very little about,—soups. I heard a working man say once, "I like to see what I am eating." I am afraid the same prejudice exists in many other minds. If we really felt that health was of far more importance than fancy, these prejudices would vanish. It is very nice to be able to have a joint of meat; but if it cannot be obtained, it is very foolish to reject other food, which is equally nutritive, just because it is not an English dish.

6. One bitter winter, some kind people made a quantity of soup to give away in a wretched London neighbourhood. They used Australian meat, then a new thing, and numbers of famished-looking people went away and would not have it. They

said it was made of "*boiled black babies.*" Prejudice is the result of ignorance.

7. The great advantage of soups and stews is, that any part of meat may be used in making them. That which is too tough or rough-looking to be prepared in any other way, will come in nicely for this method of cooking; and it is very cheap.

8. In all families the manager should learn to watch most carefully against doing away with any refuse of food, till every particle of goodness has been extracted from it. She should keep a **stock-pot** for this purpose. At least once a week she should place by the fire a sauce-pan half full of water, and into that she should deposit her savings,—pieces of bacon rind, bones from meat (and if she has none it will pay her to purchase a few pennyworths), crusts of bread, and vegetables. The stock-pot must stand by the fire simmering for many hours, then a little salt may be added to it, and it should be strained through a colander and set aside to cool, when the fat should be taken off and set aside for frying or clarifying.

9. This liquor will form the foundation of her soups, stews, and gravies. One who has not tried it would hardly believe how much nicer these dishes are when made from "**stock**" instead of from water. Of course it involves a little extra thought and trouble, but no good manager will grudge these so as to procure greater comfort for her household.

QUESTIONS.—1. What do people of other nations say of English cooks? Why ought not this to be so? 2. Who are the best cooks? Why? 3. Why should we be glad to learn from them? 4. What kind of food is necessary to keep us in health? 5. What do the French peasantry almost live on? What prejudice exists against soups? 6.

Why did the poor Londoners refuse the soup offered them? 7. What is the great advantage of soups and stews? 8. What means should be provided for saving the refuse of food? How should it be used? 9. What use should be made of the liquor?

16.—FOOD: HINTS AND HELPS—(Continued).

1. ONCE or twice we have mentioned the word **simmering**. It means keeping things near the boiling point without letting them boil. There is great mischief done to food by those who believe in “gobbling” sauce-pans. It wastes the food by boiling out the nourishment and evaporating it—sending it up to the chimney-pot, which can do without it—and it makes everything tough. Even vegetables are nicer when cooked gently.

2. It is more difficult to manage this at an open fire than it is over a hot plate or cooking stove; but the greater the difficulty to overcome, the greater the praise of overcoming it. After all, the great thing is the regulation of the fire. A French cook always cooks slowly.

3. A great deal of pains is being taken by many good people to teach how to cook by the proper heat measurer,—a thermometer. We *guess* now how hot our water for boiling, our dripping for frying, and our ovens for baking ought to be, and we very often fail to guess right. By-and-by we shall doubtless have given to us with every *receipt* exactly how many degrees of heat are necessary to cook properly every article we prepare for food. *Then* it will be only the careless who make any blunder.

4. A cook cannot be too delicate and refined in

everything belonging to her work,—her hands, her sauce-pans, her spoons and knives should be perfectly clean. Nothing connected with cooking should be used twice without washing—not a dripping-pan or a sauce-pan lid, any more than a dish or a glass. And a good manager will spare no pains in washing in cold water all pieces of meat where the blood has settled, and in scraping with a knife every part of a joint likely to be “soiled.” And it will get soiled. Those who have to do with its killing and cutting up are not too careful, and it sometimes receives rough usage. This should be remedied at home.

5. And she will endeavour to provide herself with the proper implements for her cooking. She will sooner pay fourpence for a flour-dredger, sixpence for a gravy-strainer, a shilling for a stewing-jar, or meat saw and chopper, than she will treat herself to a smart ribbon, however becoming she may deem it. Like other workers, she cannot make a good job of anything without the proper tools.

6. It will be her chief business to provide beautifully sound, nourishing, and enjoyable food, not only because it is a requisite to good health, but because it is a promoter of home happiness. The thought of the daintily spread table at home, with all its brightness and comfortable belongings, will quicken the homeward steps of those who are abroad, when their work is done.

QUESTIONS.—1. What does “simmering” mean? 2. Where is it most difficult to manage simmering? 3. How should the proper degree of heat be regulated? 4. What should be done to insure cleanliness in cooking? 5. With what will the good manager endeavour to provide herself? 6. What should be her chief business?

17.—FOOD: ITS PREPARATION.

WE shall now notice some of the different ways in which food is prepared :—

1. **Roasting.**—This is cooking meat by suspending it before a fire and keeping it turning round. A bottle-jack or a piece of twisted worsted is used to suspend it. The jack gives least trouble, as it requires little attention after it is wound up ; but it is expensive to purchase. A clever little contrivance of strong wire, made to fit to the mantel-piece, may be purchased for a few pence, and is common in most households.

You must place your meat near a good fire *at first*, to harden the outside albumen ; then draw it back and allow it to cook more slowly.

Allow quarter of an hour to each pound of meat, and twenty minutes over.

When the joint is done, little jets of steam will come hissing from the inside of it. The meat should be well basted in its own fat, and at the end well dredged with flour and nicely browned.

2. **Boiling.**—This is cooking meat in water. It should be put into boiling water at first ; but after the outside case of hardened albumen is formed, you cannot let it go on too slowly. If it *gallop*, the albumen will harden all through, and the joint will be tough and hard in spite of its former excellence.

The liquor of boiled meats should be frequently skimmed. If the scum is allowed to boil down, it sticks to and discolours the meat.

Allow as much time in boiling as in roasting a joint, and be careful that in preventing the meat from boiling too fast you do not allow it to cool: it should begin to bubble directly you put it over the fire,—that is keeping it at the boiling point. The liquor of all boiled meats makes excellent “stock.”

3. Broiling is cooking meat over the fire. Chops, steaks, and fish are nicer when prepared in this way. Two things are requisite to nice broiling—a clear fire, and a perfectly clean gridiron. Before putting the meat on the gridiron make it quite hot, and rub the bars with suet to prevent the meat from sticking. If your dripping fat makes too much flare, remove the gridiron a minute or two, and sprinkle the fire with a little salt. The meat must not be blackened. It should be turned twice or thrice.

4. Baking.—Baked meats are not so nice or so economical as those prepared in other ways. The oven may be used for the baking of pies and puddings, and for warming up remains of joints, if cut up into slices and covered with gravy or stock. The best use to make of an oven is to bake bread; but few small houses contain such a convenience.

QUESTIONS.—1. What is “roasting” meat? What appliances are used for this purpose? Why must the meat be placed near a good fire at first? What time should be allowed? How may you know when the joint is done? 2. What is meant by “boiling” meat? Why must the boiling be slow? Why should the liquor be frequently skimmed? What time should be allowed? What use should be made of the liquor? 3. What is meant by “broiling”? What foods are best when prepared in this way? What are the two great requisites to broiling nicely? 4. What is the best use of an oven? In what other ways is it often a great convenience?

18.—FOOD: ITS PREPARATION—*(Continued).*

1. **Stewing.**—Stewing is the most economical kind of cooking; the flavour and nourishment of all the materials are secured without loss, and the meat is made tender, savoury, and easy of digestion. The perfection of stewing depends on the slowness with which the cooking is accomplished. The meat, just covered with water, should be kept at boiling heat, and yet not allowed to boil. The lid should not be moved: the pan should be shaken, instead of the meat being stirred.

2. The coarser pieces of meat, which are too rough or unshapely to be prepared in any other way, make a delicious dish after stewing; and these rough pieces have the advantage of cheapness, while, when well cooked, they are as nice and as nutritive as the best joints.

3. The best method of stewing is to procure a stone jar with a close-fitting lid, and a sauce-pan into which the jar fits loosely. In the jar you place the meat, vegetables, and seasoning, with just enough water to cover them: put the lid on the jar, and do not remove it till you need to dish up the meal. Then pour some water in the sauce-pan and place the jar inside. The water in the sauce-pan may boil away merrily if you like, but the supply must be kept up, else your jar will crack. The boiling water cooks the provisions inside the jar. There is no waste, however long you keep it there. Tough and rough pieces of meat will come out beautifully tender, with every drop of nourishment inside or in the gravy. Bad

managers object to stewing—it takes a longer time ; they would sooner put the meat in a frying-pan and cook it that way.

4. **Frying.**—Meats prepared in the frying-pan are hard and indigestible. The best use of the frying-pan is to warm up vegetables and to fry fish, or to brown vegetables which are to go in the stock-pot or in stews. In frying, a little dripping should be used ; but it should not be allowed to burn brown before the frying begins. All things fried should look a nice crisp brown. If too much fat be used, they will look white and soddened. If the fire be too fierce, they will be black and charred.

5. **Fish.**—Great care is needed when boiling fish that it be removed from the fire as soon as it is done. This is known by trying if the flesh easily separates from the bones, and watching when the eyes begin to start out.

6. **Vegetables.**—Vegetables should be well washed, not soaked in water, before boiling. The addition of a little vinegar or salt in the washing water will remove insects. Green vegetables should be plunged into plenty of boiling water, and occasionally skimmed. All vegetables are unwholesome if not thoroughly done.

7. **Puddings.**—These may be baked or boiled. Boiled puddings are usually made with a dough of suet and flour and fresh fruit. They should be well boiled. A pudding made in a pint basin needs to boil two hours and a half.

QUESTIONS.—1. Describe the process of “stewing.” What are its particular advantages? 2. What is the result of such a method?

3. Describe the best method of stewing. 4. What way of cooking is sure to make meat hard? What is the only good use to which a frying-pan can be put? Why must fat be first melted in the pan? What should be the colour of all fried foods? 5. What must be the chief aim in boiling fish? How can it be known when this is the case? 6. Why is it necessary to wash vegetables? What will help to remove insects? Why should plenty of water be allowed? Why must all vegetables be thoroughly done? 7. How do we cook puddings? Of what are boiled puddings usually made?

19.—DAINTY DISHES.

1. LET us suppose that you have been able carefully to prepare your stock as directed; that you have saved all the "odds and ends" of housekeeping; that you have extracted all the goodness from them by gentle simmering for a long time; that you have strained the liquor and taken off every particle of fat; and that now you are going to turn it into tapioca soup.

Take three pints of stock and set it in a sauce-pan to boil; then take two ounces or two table-spoonfuls of tapioca, wash it quickly in cold water, and dry it on a cloth. When the stock boils, sprinkle in the tapioca, gently stirring all the time; then set it on the hob and let it simmer until it thickens and the tapioca is transparent; then set the sauce-pan on an old plate or piece of paper on the table to cool. Take two eggs; beat them a few seconds in a basin, and add to them one quarter of a pint of milk.

When the stock has cooled for five minutes, stir in the eggs and milk. Be sure you let it cool long enough, else the eggs will curdle, and the soup ought to be smooth like cream. If you can afford it, add a table-spoonful of catchup, and season with pepper

and salt. Warm it up again, but *do not boil it*, before serving.

This, with some bread nicely toasted, or some potatoes, will make a good dinner for three or four people. It will cost, without the stock, tapioca, 1d.; vegetables, 2d.; eggs, 2d.; catchup, seasoning, and milk, 1d.;—total, 6d.; and you will find it exceedingly good.

2. Gravy Soup.—Purchase a two-pound tin of Australian meat, and a pennyworth of mixed vegetables, as onions, turnips, carrots. Open the tin, set it in some boiling water to melt the jelly; then take out the meat and put it on a dish.

Take two quarts of stock, add to it the melted jelly and set it to boil. Place over night a pint of split peas in plenty of water to soak; after draining them thoroughly, add them to the boiling stock, set them on the hob to simmer gently with an occasional stir.

Place your frying-pan on the other hob, and put in it a little fat or dripping to melt. Nicely clean your vegetables, cut them into thin slices, fry them a nice crisp brown, and add them to the soup. Season with pepper and salt.

If you prefer it, the soup may be thickened with half a pound of rice, quarter of a pint of oatmeal, or three ounces of vermicelli.

Australian meat is already too much cooked. It should be eaten cold with mustard or a little sauce or pickle; or it may be just warmed in a covered dish in the oven. The soup and the meat will make two good dinners with bread and vegetables.

3. **Tripe and Onions.**—Buy sixpenceworth of fresh white thick tripe, six large onions, and a pennyworth of good milk. Cut the tripe into square pieces and wash it in cold water; put it into your sauce-pan or your stewing-jar; put in the milk, and add enough water to cover it well.

Let it cook gently for four hours without moving the lid of your jar; but the sauce-pan must be occasionally stirred, else the tripe will stick and burn.

Boil the onions till they are tender, chop them fine, and add them to the tripe with seasoning of pepper and salt and a small tea-spoonful of sugar. Make a smooth thickening of two table-spoonfuls of flour or oatmeal, and stir it into the sauce-pan about a quarter of an hour before serving.

4. **Irish Stew.**—Procure two pounds and a half of the scrag-end of the neck of mutton, and wash it in cold water. Chop the bones through at the joints and divide it into pieces; place them in your jar or sauce-pan with about a pint and a half of water, and let it cook for two hours; then add three or four onions nicely shredded and fried a light brown.

Peel about twelve potatoes, cut them in halves neatly, and place them on the meat. Add a tea-spoonful of salt and a salt-spoonful of pepper, and serve when the potatoes are tender.

On serving, do not turn it into a dish, anyhow, but place the vegetables in the middle, in a little pyramid (they should not be done to a “smash”); arrange the meat round the edges, and pour the gravy over all.

5. Deftly—oh! so deftly—
 She carries out her wishes;
 Odds and ends of this or that
 Turns to "dainty dishes,"—
 Comfort-giving, wholesome food,
 Whisked up in a minute;
 Yet without the skill and care,
 What would there be in it?
 Such a manager as this
 Leads a noble life;—
 Better have a fortune *in*
 Than fortune *with* a wife.

QUESTIONS.—1. How may tapioca soup be made? How many persons will the dish serve? How much will it cost? 2. Explain how gravy soup is made. 3. How should tripe and onions be cooked? 4. How is an Irish stew made? How should it be served? 5. Repeat the verses.

20.—FOOD: ITS "WHEN," "HOW MUCH," AND "HOW."

1. **When.**—It is an old-fashioned but very good saying, "Eat when you are hungry, and drink when you are dry;" but, in spite of the wisdom of the proverb, it is not always possible to carry it out. It has become a matter of pleasure and convenience to us to take our meals at the same time, all together; and it is a good thing that it should be so. Our meals consist of **breakfast, dinner, tea, and supper.** The heaviest or heartiest meal should be made **early in the day.** It is difficult to eat too much breakfast, and those who have to go to work early should breakfast early. No one should eat heartily before going to bed. The stomach requires rest during sleep in common with the other organs of the body, and a hearty meal taken in the evening will give it work that it ought not to have.

2. **How much.**—The quantity of food to be eaten depends upon the age we are, and the work we have to do. Young people who are growing, and strong people who are working hard, need more food than aged people who neither work nor grow. Dr. Lankester says this of the quantity of food necessary: "A healthy infant of six months old will consume from one quart to three pints of cow's milk in a day; and a strong man will need four ounces of flesh-formers, twelve ounces of starch-food, five ounces of butter and fat, two ounces of sugar, and one ounce of mineral matter." Every one should study his or her own actual need. It is a disgrace to eat for the mere pleasure of eating. We should eat moderately till the cravings of nature are satisfied.

3. **How.**—A clever man once said: "If I see the animal feeding, I can tell you what class he belongs to, and give you his character." There are some people who would not get a good character if they were to be judged only by their way of eating. There should be no time when order and neatness should be more observed than when we are taking food. We should attend specially to these things:—

(a) **The Order of the Table.**—It should be neatly spread with a white cloth; and great pains should be taken to avoid making slops, grease spots, or creases upon it. Every article needed should be placed upon it with nicety and care, in the most convenient position.

(b) **Politeness to Others.**—We should carefully regard the wants of every one around us, and be so attentive to them, in passing all they need, that

they will not require to ask for or reach after anything.

(c) **Good Manners in Ourselves.**—We should be careful to handle our knives and forks properly, keeping the forefinger on the little steel bridge at the top of the handle, and not clutching it like a climbing pole. We should eat **tidily**, not scattering our crumbs; **cleanly**, not soiling our clothes; and **slowly**, not hurrying over or bolting our food. We should not put too much into the mouth at once, nor speak when our mouths are full. If we find it necessary to cough or sneeze at the table, we should quickly turn away and place the hand before the mouth, to prevent unpleasantness to others. It is a good thing to eat with a cheerful, quiet mind: noise and rough behaviour should be banished at meal-times, but pleasant chat renders the food a greater refreshment.

QUESTIONS.—1. What is the old proverb about when to eat? Why cannot we always carry this out? Why is it a good thing for us to meet together at meal-times? How many meals have we? When should we eat our heartiest meal? Why? What is the evil result of hearty suppers? 2. Which people require most food? How much does Dr. Lankester say a man will require? What should be our guide as to the quantity we should eat? 3. What is said as to the order of our meals? What should be observed with regard to the table? With regard to others? In ourselves?

21.—CLOTHING: ITS PURPOSES.

1. The use of clothing is to enable the body to keep its inside warmth at the same regular temperature in all climates and seasons.

2. If two substances are placed close together, the one being hotter than the other, the cold one will

keep drawing heat from the hot one till their heat is the same. If the hand be placed on a cold substance, the warmth will be drawn from the hand into the substance touched. And if the cold substance be constantly changed, more and more warmth will be drawn from the body.

3. When a mother wishes to cool a baby's food, she pours it from one vessel to another; and as each vessel draws off some of the warmth, the food becomes cooler. In like manner, if the body were naked, the cold shifting air would carry off the inside warmth faster than the carbon and oxygen could create it. The body needs the power of keeping off all extra cold. It does this by the use of additional clothing.

4. In cold countries the body requires several layers of thick clothing, so thick that the air cannot penetrate it to steal away the inside warmth: the colder the air, the thicker the clothing necessary. Those parts of the body which cannot be so protected frequently lose all their warmth, and the blood freezes. In these cases it is not uncommon for the frozen part to break off, such as the nose, the ears, the toes, and the fingers.

5. The heat of the body must be kept very near 98 degrees. A few degrees up or down make a great difference to health, and may even endanger life. Sometimes the atmosphere is much hotter than that. When this is the case, the body needs the power of cooling down all extra heat. It does this by bathing its surface with moisture.

6. It cools down the heat just as we put out

a fire by water. As soon as the inside temperature becomes too high, the body begins to bathe itself in perspiration, and by the fluid passing into a state of vapour, heat is taken up and the blood cooled. When this is prevented or driven back, many kinds of disease follow; fever is one of them. The principal use of clothing in hot countries is to shield the body from the outside heat—it is a sort of fire-screen. It should be thin, light, and loose.

QUESTIONS.—1. What is the primary use of clothing? 2. What happens when cold and hot things come into contact? If the cold object be continually renewed, what will happen? 3. How is this principle applied to little home matters? What would be our greatest enemy, as regards cold, if we were unclothed? 4. Why is thick clothing worn in cold countries? What sometimes happens to parts that are unprotected? 5. What should be the heat of the body? What has the body to guard against when the atmosphere is hotter than that? How does it do this? 6. What do we call the moisture with which the body cools itself? If this cooling process be hindered, what evils ensue? What is the use of clothing in cold and temperate climates? What is the use of clothing in hot climates?

22.—CLOTHING: ITS SUITABILITY.

1. It seems strange to us, when we first learn the fact that colours have a great deal to do with heat and cold. All black or dark colours have the power of absorbing or taking in the heat to themselves; while all white or light colours have the power of repelling or throwing back heat.

2. If black clothes are worn outmost, they have the power of absorbing the sun's rays or other external heat, and of forming a warm casing around the body, which is most desirable in winter. If white clothes are worn outmost, they repel the

outside heat from themselves, and so keep it off the body. This is most desirable in summer.

3. Thin flannels should be worn next the skin in summer. Being porous, they allow the perspiration to pass through without giving such a chill to the skin as linen does. Thick flannels should take their place in winter, because wool does not carry off heat well, and it is a good protection from cold. In temperate climates the temperature is never so high as that of the blood; so in some measure the body needs protection against outside cold in all seasons.

4. When it is the fashion to cover up every part of the body as high as the throat, and then to leave that bare, it is no wonder that throat diseases increase. When it is the fashion to perch all the head clothing to a great height on one part of the head only, and to leave the face, ears, &c., without protection, it is no wonder that we hear then more of neuralgia than usual. The prevailing disease or increased mortality from especial causes can only too often be traced to some folly called "fashion."

5. Clothing intended for work should be of such material that frequent washing will do it no harm.

6. It is of the highest importance that the feet be warm and dry. Stockings should be soft and woolly, and shoes stout and strong.

QUESTIONS.—1. Which colours absorb heat? Which colours repel heat? Why are grates black? Why are the bottoms of kettles and saucepans black? Why are Dutch ovens and the lids of saucepans made of white metal? Why should the top of a kettle be kept bright and polished? 2. Why is it wise to wear black or dark clothes *outmost* in winter? Why should we wear white or light clothes *outmost* in sum-

mer? 3. How does linen or calico clothing feel against the skin after perspiration? What is the danger of this? What should our innermost garment be made of? Why should thick flannels be worn in winter? Where does the body need protection against cold in all seasons? Why? 4. Why is it imprudent to leave any part of the body unprotected? Which parts are most affected by exposure to cold? When there is any great increase of disease in one particular part of the body, to what can it usually be traced? 5. How should we choose clothing for work? 6. How should the feet be cared for?

23.—CLOTHING: ITS SOURCES.

1. ALL the material we use for clothing we obtain from the animal and vegetable kingdoms.

2. **FIRST. From Animals** we get *wool* or *hair*, used in making cloth stuffs for dresses, flannel, blankets, and carpets. The various kinds of sheep and the llama and Cashmere goat furnish us with the needful material.

3. *Silk*, the softest and most valuable kind of clothing. We get this from the flossy cocoon of a little caterpillar, which spins its soft nest from a substance formed by a gland in its body.

4. *Fur* we obtain from animals whose skin is dressed without removing the hair. All animals whose hair is soft and long furnish skins for this purpose. The most valuable are those of the seal, the chinchilla, the ermine, the marten or sable, the Arctic fox, and the lynx. Many men lose their lives in procuring for us these comforts.

5. *Leather*.—Animals with short, stiff hair, unsuitable to make fur, have stout, tough hides, which furnish us with leather. The hair is removed, and the skins are dressed or tanned with various prepara-

tions, which render them soft and pliable and yet waterproof.

6. **SECOND.** The principal **Vegetable** substances used for clothing are obtained from flax, which makes linen; and from cotton, which makes calico.

7. *Flax* is a delicate little plant, grown chiefly in Ireland: it has a pretty blue flower. The linen is obtained from the fibre of the stalk. The outer bark is stripped off, and the fibre soaked, softened, and beaten. After various processes, it is twisted into threads and woven into cloth. It is without the "fluffiness" of cotton, and is both cooler and firmer. For dressing wounds old linen is better than cotton, because there are no little "fluffy" ends to stick or irritate.

8. *Cotton* is obtained from the cotton-plant, which is largely cultivated on both sides of the Equator. It is grown in different parts of America. The cotton is found round the seeds in a bean-like pod: these pods burst as soon as the cotton is ripe. The English are the greatest cotton manufacturers, and Manchester is the principal seat of the trade.

QUESTIONS.—1. Which of the kingdoms of nature supply us with clothing? 2. Which are the principal animal products? What are the various fabrics made from wool or hair? What animals furnish these materials? 3. Where do we obtain silk? What are its qualities? 4. What is fur? Which are the most valuable kinds? How do we obtain these luxuries? 5. What is leather? What animals furnish it? What is done to the skins to render them fit for use? 6. What clothing materials do we obtain from the vegetable kingdom? 7. What is flax like? From which part of the plant is the linen obtained? How is it prepared? Compare linen and cotton for surgical purposes. 8. Where is cotton cultivated? In what part of the plant is the cotton found? What people are the greatest cotton manufacturers? Where is the principal seat of the trade?

24—CLOTHING: ITS PURCHASE.

1. YEARS ago our grandmothers made a great business of buying a new dress or a petticoat. The articles cost a good deal of money in the first place; but then they lasted a long time, and looked well to the last. In their days cheap drapery was not to be had. Every one wore good, well-made articles; and so all looked comfortably and substantially dressed. Flimsy, faded articles, were not known; and a servant whose wages were only three pounds a year dressed in better clothing, and with simpler and therefore better taste, than those who now earn ten or twelve pounds.

2. Material for clothing should be purchased of such **quality, texture, and colour**, as will insure its wearing well and looking well to the last.

3. Things made by manufacturers on purpose to be sold cheap, are of **inferior quality and make**. The wool is mixed with cotton; the dyes will not stand rain or sun; and they are "dressed" so much that thin paltry fabrics feel thick and stout till they are washed, and then they will scarcely stand wind enough to dry them. Many of the cheap new articles are produced from old rags torn to pieces, twisted into fresh threads, and woven over again in what are called the "shoddy factories."

4. People who purchase cheap goods are constantly buying and making, and yet they almost always look shabby. It is better to wait and contrive a little, and then purchase the very best material you can afford. This is really the most economical way.

And if the making has to be paid for, a good deal is saved in a year.

5. A buyer should always make up her mind as to what she exactly wants, and then not allow herself to be persuaded to purchase anything else.

6. A buyer should go into a shop determined not to lose her own time nor to waste that of any one else.

7. A buyer should find out a shop where really good articles are sold, and make all her purchases there, and not be tempted by gay windows and low prices. Good materials, quiet colours, touched up and enlivened by a bit of brightness at the throat or in the bonnet, will help to that much-coveted thing, "*a lady-like appearance.*"

QUESTIONS.—1. Why did our grandmothers look more comfortably dressed than poor folks at this time? What are the disadvantages of cheap drapery? What made the people of old time so careful of their clothing? 2. What three things should be considered in purchasing material for clothing? Which is the best sort of material? 3. Of what two sorts of material are cheap fabrics made? What is the consequence of their "*bad constitution*"? 4. Why are purchasers of cheap drapery always buying? Which is really the cheapest way of going a-shopping? 5-7. Give three good rules for persons going to buy. What will conduce to a lady-like appearance?

25.—CLOTHING: FASHION.

1. CLOTHING should be constructed of such **shape** and **texture** as shall best carry out the purpose for which it is worn—the promotion of health. Any article of clothing which in any way interferes with the free, healthy action and use of any part of the body, is to be condemned. The tiny iron shoes put

on Chinese babies are not so injurious to health as the tight stays which were once fashionable in Europe.

2. It sometimes seems as though people thought their clothing of much more importance than their bodies. The body is made to fit into and accommodate itself to the clothing, instead of the clothing being adapted to the wants and comforts of the body.

3. Clothing in temperate climates is used to prevent any chill or damp from robbing the body of its inside warmth. This protection should be regular all over the body. One part must not be clothed and another left naked; and whatever Fashion may say about turn-back collars to jackets, low dresses, and small waists, the wise will give no heed.

4. It would take volumes to describe all the absurdities to which Fashion has led its followers. One generation makes fun of what another generation thought admirable. No one likes to look "peculiar" or "old fashioned." It is well for those who can choose the medium path between old and new, and, picking out the prettiest from both styles, dress themselves accordingly.

5. It is folly to fancy that what is most fashionable is most becoming. A style which suits one face and figure makes another simply ridiculous.

6. It is the duty of every one to look as nice and as pretty as she can; and each should study the things which suit her best, in order to give pleasure to those who love her. Freshness is the great charm in all female clothing.

QUESTIONS.—1. What should be our rule in deciding *the style* of our clothes? In what way have people in Europe been more cruel than the Chinese? 2. Why is it said that people make their bodies adapt themselves to the fashions? 3. Why should all the body be equally clothed? What follies in fashion lead us to forget this? 4. What is the wisest course for us all to take with regard to fashion? 5. Why should we all remember that what is an ornament to one person may disfigure another? 6. Why should all young persons try to look as nice and as pretty as they can? What is the greatest charm in all female apparel?

26.—CLOTHING: ITS PREPARATION.

1. It is impossible to estimate the home value of a hand that is clever with the needle. The wonders that can be worked with that tiny steel instrument are past enumerating. And every one is ready to admit that sewing-machines, wonderful though they be, are no match for the cunning devices of well-trained fingers.

2. A working man's wife especially needs this cleverness, for the greater part of her needle-work will consist of that "*fine art of mending*," which sewing-machines cannot undertake at all. To know how to set in a patch without its being discovered, to be able to make an old garment look nearly as good as new,—that is one of the greatest accomplishments a woman can have.

3. Every girl should learn to hem, to sew, to fell, to gather, to stitch, to whip, to make button-holes, to fine-draw, to knit, and to darn; and after that, to "cut and contrive." Tatting, crocheting, embroidery are all nice and pretty things to learn, but none of them should take the time or the skill which ought to be given to plain needle-work.

4. When a good price has been paid for the various articles of clothing, every possible care should be taken to preserve them in good condition. **A stitch in time saves nine.** A tiny rip or a faulty seam should be at once put in repair; and as each article wears thin, neat darns should take the place of the weakening warp or woof.

5. Stockings need especial care: if tiny holes be mended as soon as they appear, there will be no dreadful gaps to fill up. Don't wait till holes come; stop their coming if possible. There are some stockings which are one mass-specimen of beautiful needle-work, although too old to be worn any longer; and there are those which never had a darn which are one mass-specimen of rags—all hole and no stocking.

QUESTIONS.—1. Why should every girl try to be clever with her needle? What is the great benefit in having a sewing-machine? 2. Who especially needs to be clever with her needle? What is meant by the "fine art of mending"? 3. Why should needle-work form a principal thing in a girl's education? What is plain needle-work? What is fancy-work? Which of the two requires the most talent, skill, and patience to acquire? Of what use is fancy-work? 4. How should clothing be *kept* in good condition? What should be done to *thin* places? 5. Which are the worst garments to mend? How may large holes in stockings be prevented?

PART II.

1.—THE AIR WE BREATHE.

1. WE have learned how essential it is that the body should have various kinds of food, in order that it may be kept in perfect health. There are other necessities as important for the body as good food.

2. We take food in a solid state. It is acted on by the various secretions and juices, till it is reduced to a thick fluid : it must next be warmed, purified, and sent flowing through the blood-vessels ; and this is done by the air we breathe. There is something in our food which mixes with another something in the air we breathe ; and then together these somethings burn and consume. The faster we breathe, the faster does this burning go on, the warmer do we become, and the more quickly does the blood rush through the vessels.

3. The air we *breathe in* keeps up this burning ; the air we *breathe out* has undergone a change : all the good has been taken out of it, and it returns loaded with matters which the body rejects.

4. Pure air is composed of two gases—oxygen

and **nitrogen**. Oxygen is the gas without which nothing in the world would burn. If the air were all oxygen, the burning or consuming would go on too fast; so it is diluted or weakened by being mixed with nitrogen, just as we dilute a strong medicine with water before using it. In the air we breathe there are *five* parts of nitrogen for every *one* part of oxygen.

5. Pure air should consist of oxygen gas properly diluted with nitrogen, and of nothing else. Life cannot exist, and burning cannot go on anywhere, without oxygen gas.

6. That part of all substances which will burn or consume away—the solid or fuel part—is called **carbon**. Carbon has many different forms. One form of it is found in coal and charcoal; another in the beautiful diamond.

7. Carbon begins to burn whenever it is brought under the action of oxygen gas. There is no flame produced by the burning, unless another gas comes to help in the work; but the burning goes on nevertheless.

QUESTIONS.—1. Why is it necessary that the body should have various kinds of food? Is good food the only essential to good health? 2. In what state is our food when eaten? By what means must it be reduced to a fluid state? What else must be done to it? What performs this work? What is in reality the operation going on in our lungs? What increases the speed of this burning? Why? 3. What is the difference between the air we *inspire* and the air we *respire*? 4. Of what does pure air consist? What is the use of oxygen? What good does nitrogen do? What are the proportions of oxygen and nitrogen in the air? 5. To what is oxygen essential? 6. What is the name given to the *fuel part* of all substances? What are some of the forms in which it appears? 7. What consumes or burns the carbon? What is peculiar about the burning when only oxygen acts upon carbon?

2.—THE POISONOUS GAS.

1. WHEN any substance is being consumed by burning, it unites with oxygen and forms something quite unlike itself. When coal is being consumed, it gives out smoke or vapour; when water is heated, it is converted into steam. These are not *chemical* changes. Steam is water in a state of gas. But when the carbon in our food, or anywhere else, is consumed under the influence of oxygen, a gas is formed by chemical action which is neither carbon nor oxygen alone, but a union of both. This gas is called **carbonic acid gas**. The breathing of this gas will destroy life—it is **poison**.

2. The air breathed into the lungs should be pure air, containing only oxygen and nitrogen. When it returns from the lungs, it has been spoiled by being mixed with an excessive amount of carbonic acid.

3. In many ways this poison-gas is being continually poured out into the air. It is made by the action of oxygen upon any substance that contains carbon. As soon as carbon and oxygen unite, then at once the formation of poison-gas begins. From the breath of every living animal, from every heap of animal or vegetable matter the air can reach, and from every flame that burns, carbonic acid gas is poured forth into the air, and it will kill and not nourish animal life.

4. Now, if this be the case (and it is so) why are we not all poisoned? How is it that all the good air does not get used up, and only the poison remain?

5. Although pure air, consisting only of oxygen

and nitrogen, is absolutely necessary to the support of animal life, there are other things which live and grow to which it is not necessary. These are found in the **vegetable kingdom**. The very gas which we reject as poison forms the life and support of the world of plants.

6. *They* are continually appropriating the carbonic acid and ejecting the oxygen; *we* are continually appropriating the oxygen and ejecting the carbonic acid. The one works for the benefit of the other. Each retains what the other does not want, and throws off what the other requires. In this way a supply for the necessities of each is kept up.

QUESTIONS.—1. What happens in the consuming of any substance? When carbon and oxygen consume, what is produced? What is the character of this gas? 2. Of what should the air we breathe-in be composed? What is it when it comes out? What is the cause of the change? 3, 4. In what other ways is this poison-gas formed? What should we soon do to the pure air if there were no supply to equal the demand? 5. To what life are oxygen and nitrogen absolutely necessary? To what other life are they not necessary? 6. Describe the work each of these does for the other.

3.—WINDS AND BREEZES.

1. WE have seen how the animal and vegetable worlds help each other; each one throwing off into the air the gas which the other needs, and imbibing only that which the other does not want. But every one knows that where there are the most people, there is generally the least vegetation; and on the other hand, where the mightiest forests wave, are the fewest inhabitants. How are we to account for this?

2. *First*, Let me tell you that when carbonic acid gas is warm it is much lighter than the common atmosphere, although when it is cold it is much heavier. Now, light things have a tendency to rise, and heavy things have a tendency to sink ; hence when the carbonic acid is breathed out into the air, being warm, it is pressed upwards, or shouldered out of the way.

3. *Secondly*, Let me tell you that there is a mighty body of police constantly at work for us, compelling this poison-gas to "move on." They may come with bluster and noise, or they may come with gentleness and quiet, but they never cease their labour. These are the mighty rushing winds and the gentle breezes—servants going and coming wherever they are required.

4. They sweep over the earth, current after current, conveying away poison, and bringing back life-supporting oxygen ; supplying at one and the same time the greatest monarch and the tiniest insect, the loftiest tree and the smallest blade of grass.

5. There is no break in their work. We are never left fainting and exhausted till they come back to us. One tiny breeze cannot shift an inch but another is pressing onward to take its place ; and if their movement be interrupted for ever so short a time, there is danger to health and life—the poison increases, and the supply of pure air diminishes.

6. If the carbonic acid after it is cold sinks into a deep place, such as a well, a pit, or a mine, it settles more and more densely at the bottom : the moving

winds pass over it, but cannot get under it; and any animal entering to breathe it, must die. Many lives are lost in this manner—death is almost instantaneous.

QUESTIONS.—1. Do most animals exist where there are most vegetables? Why not? What difficulty seems to arise from this? 2. What becomes of the poisonous gas as soon as it is warm? Why does it rise? What helps it to ascend? Which is the heavier air? 3. What compel the various gases to shift from place to place? 4. What great work do they do by this? 5. When do they leave off working? Why is it necessary that theirs shall be unceasing work? What would be the consequence to us if they stood still? 6. What places are rendered especially dangerous by the accumulation of carbonic acid gas? How does it get into such places? Why do not the winds remove it? What effect has entrance to such places on animal life?

4.—SPOILED AIR.

1. It is quite as necessary to health that we should have pure air to breathe as that we should have good food to eat; and yet how few people there are who really seem to believe this! They rise up early and go to bed late, in their anxious toiling to secure the one blessing, while they utterly disregard the other. How do they show this? They are indifferent about the things which spoil the air around them. Let us notice what these things are.

2. Everything that makes the air small badly spoils it—odours from chemical, candle, and gas works, from tan-yards, from slaughter-houses, from pig-sties, and from stables. Yet people often choose to live in houses where no other air is to be got. They say it is "handy," or "cheap;" forgetting that nothing is so dear as that which injures the health.

3. Then people are often indifferent about the **drainage** of their dwellings, although every imperfect drain or sewer gives out poison. Often all the drains leading from a large number of houses lead into one common cess-pool or pit, from which poison-vapours are constantly steaming back up the pipes into the dwellings.

4. They cannot be smelt during the day, perhaps, when the moving wind gets in through the open doors and windows, and shifts them; but in the night, when the house is shut up, the inmates, who are all helplessly sleeping, breathe the poison over and over again, and wake up with headache and other pains, feeling weak and unrefreshed, instead of bright and fit for work. These feelings often lead them to take some stimulant in the shape of ardent spirits before their labour commences; and thus they add poison to poison.

5. Then people often allow the poison-vapours to be sent forth close to their dwellings. All **decaying matters** give out carbonic acid. Yet what heaps of such matters, reeking with poison, are often found in a dust bin or in a pool of stagnant water!

6. **Dirt** of all kinds poisons the air: even dry dust is only tiny atoms of decayed animal or vegetable matter floating about in the air. Miss Nightingale says: "Air can be soiled just as soon as water. It can be soiled from without, by dirty streets, sewers, smoke, and many other things; it can be soiled from within, by dirty walls, floors, carpets, curtains, and by dust."

QUESTIONS.—1. What is a second great requisite to good health? What is generally considered the most important thing to be toiled for? Why is fresh air equally important? How do people show they are ignorant of this? 2. What do bad smells do to pure air? What are some of the commonest of these smells? How do people excuse themselves for choosing homes in places where such smells are prevalent? What is the dearest thing we can buy? 3. In what other way may air be spoiled? How does bad drainage affect the air? 4. What destroys the power of bad drains during the day? When are they likely to be most dangerous? Why? What effect has the spoiled air on those who breathe it? What is too often the sad result of these feelings? 5. What is given out by all decaying heaps? Where are such heaps found? 6. How does Miss Nightingale say air may be soiled

5.—DIRT.

1. TINY atoms of decaying matter, called dirt, are continually floating about in the air, and not only are drawn in with our breath, but settle all over our bodies. If dirt near the dwelling is intolerable, dirt on the body is still less to be borne.

2. The body has various ways of getting rid of all internal refuse matter; the poison vapour which is formed by the carbon in our food and the oxygen in the air is breathed outwards. Other impurities are washed out of the body by perspiration.

3. You remember that the use of perspiration is to enable the body to cool down the superfluous heat produced either by violent exercise or by climate. When the perspiration passes from the body, it washes out before it any impurities it may find in its way; and it is said that as much as a quarter of an ounce of solid decaying matter is thus got rid of every twenty-four hours.

4. To enable the perspiration to pass from the body to the surface, the skin has been provided with

a number of tiny openings called pores, which are the mouths of little glands. These glands secrete or form the sweat, and an oily matter which makes the surface of a healthy skin smooth and glistening. They are packed so thickly together that on some parts of the surface as many as three thousand of them are found on a space that a shilling would cover! So numerous are these tubes, that if they could all be taken out of our body, fastened together, stretched out and measured, they would be found to be about twenty-eight miles in length!

5. From these millions of tiny tubes the perspiration flows. Sometimes the pores or openings are stopped up by dirt which has settled on the skin, and so the perspiration is driven back again. If any impurity goes back with it, it does mischief inside the body; if the impurity remains near the surface of the skin, it unites with the dirt which blocks the mouth of the pore.

6. The matters which thus stop up the pores may excite inflammation, pimples and blotches are formed, and the skin does not heal till the poisonous stuff has discharged itself in the shape of matter. If the perspiration is not interrupted, it evaporates outside the skin, and leaves the impurity on the surface to be removed by the hands.

QUESTIONS.—1. How would you define "*dirt*"? How does dirt do us mischief? How should we regard dirt in or near the dwelling? How should we regard it on ourselves? 2. In what two ways does the body get rid of internal refuse matter? 3. What is the work of perspiration? What else does it undertake while doing its own work? What is the quantity of refuse secretion washed out daily by perspiration? 4. What provision has been made in the skin to enable the perspiration to flow out? What are these channels called? By what

illustration can we get an idea of their number? 5. What is likely to impede the course of the perspiration? What is the consequence of the stoppage? What becomes of the internal impurity? 6. What mischief does it do inside? What mischief does it do near the surface? If there is no "blockade" on the surface what becomes of the perspiration? What of the impurity it conveyed?

6.—DRAUGHTS.

1. WE have said that the especial work of girls and women is connected with healthy, happy homes; and we have seen some of the ways in which that work is to be done. How can the heart be light and glad, the brain clear and clever, and the body active and strong, when they are constantly under the influence of a slow poison? For we have seen that we are exposed to the risk of poison everywhere—there is poison in improper food and drink, poison in impure air, and poison in dirt.

2. Every home-manager, then, must look after three things,—not only that good and suitable food is provided, but that a sufficient quantity of pure air is supplied, and that the most scrupulous cleanliness is preserved in the home,—its furniture, its inmates, and their clothing. We have said a good deal of the first of these things; let us now consider the others.

3. First, then, as regards the supply of pure air. The fine art of keeping the breathing air pure without causing a draught is called **ventilation**; and a very difficult art it is to master. Clever men have spent a good part of their lives trying to solve the problem, and have passed away leaving their work still

incomplete. At one time it seemed easy enough. People said, "Make some holes in the floor for the pure air to get in, and some holes at the top for the foul air to get out;" but this did not do,—it was found that the feet and legs were exposed to a continual draught, and were always cold. But what really is a draught?

4. A draught is caused by a current of fresh or cold air passing through a room—in at one opening, and out at another. As the air of this current is colder than the air in the room, all who sit or stand in its course receive a chill on those parts touched by the current. Colds, and the evils resulting from colds, are the consequences—coughs, bronchitis, neuralgia, sore throat, rheumatism, inflammation.

5. The greater the difference existing between the surrounding temperature and the current introduced, the greater will the danger be. If it were possible to heat the air all around us to exactly the same degree, a draught would not be felt; but even then we should suffer from contact with outside air.

QUESTIONS.—1. Whose especial work is it to make happy homes? What is the first great requisite to happiness? What will surely destroy happiness? In what are such poisons found? 2. What three things will conduce to make healthy, happy homes? Whose business is it to attend to these things? 3. What is "ventilation"? How did people at first propose to ventilate? What was objectionable in the plan? 4. What is a draught? What are the consequences of sitting or standing in a draught? Why is this? What evils result from catching cold? Explain why a chill on the surface should produce such a result. 5. What will increase the danger? Why is it a bad thing to sit in a very warm room or building and afterwards to enter the outer air?

7.—VENTILATION.

1. It is much easier to keep a small room well ventilated which is used only by a few people, than it is to do the same thing for a large one which is used by many. For churches and large buildings, there are all sorts of complicated contrivances; but with them the home-manager has very little to do.

2. Remember that ventilation consists in **introducing pure air and letting out foul air without causing a draught.** Let us examine some of the simplest contrivances that have been made to help in doing this.

3. *The chimney valve.*—This is a valve let into the chimney near the ceiling. It is so contrived that it will open from the pressure of the foul air within the room, and allow it to pass through into the chimney, but will shut up and refuse to admit any downward or inward draught. Of course it will be seen that when the current from the inside of the chimney is the stronger, the valve will be kept closed, and the foul air will remain in the room.

4. *India-rubber tubes.*—These are pipes with open ends, one of which is carried through the wall into the open air, and the other deposited near the fire-place. By thus bringing a current of fresh air to the fire, the warm air is pushed up the chimney faster than it would otherwise ascend, and so a change of air constantly takes place. These tubes are apt to get twisted, injured, or misplaced.

5. *Perforated zinc tubes.*—These are tubes made entirely of perforated zinc, carried close to the

ceiling all through the house, from outer wall to outer wall. They are open at the ends, and are admirably adapted for carrying off the foul air, and for admitting the fresh air in tiny streams through the perforations. These streams are so small that no draught is caused, unless the wind drive directly against the open ends, when they can be closed by a plug. The inconvenience of having to go outside for this purpose, especially in wind and rain, and the further difficulty of reaching the plug, which is on the level of the ceiling, render this plan unpopular.

6. *Revolving wheels, slits cut in the glass* of upper panes, *perforated zinc* in upper panes, are all simple methods of ventilation. As air will diffuse itself, it is generally supposed that enough air will get in by the crevices round the doors and windows if only room is made first by the foul air passing out. Many people have zinc plates let into the bottom of the door.

QUESTIONS.—1. Which is the easier place to ventilate, a dwelling-house, or a church? Why? 2. In what does ventilation consist? 3. What is a chimney valve? How does it act? What is its purpose? What would hinder its working? What would this cause? 4. What is the object of the india-rubber tubes? Where are they placed? What good are they likely to do? To what accidents are they liable? 5. Describe the zinc tubes. What are their especial advantages? When only is a draught possible? How may it be prevented? Why is the plan unpopular? 6. What other plans have been recommended? What is the main difficulty in ventilating? Why?

8.—VENTILATION—(Continued).

1. It is quite possible to keep a dwelling pure and sweet without any of these contrivances, if the

windows open at the top and bottom, unless there be something utterly wrong around us.

2. First, the home-manager must see that there exists nothing **outside the dwelling** likely to poison the air before it gets inside,—no crowded dust-bin, no stagnant pool, no decaying heap of rubbish, animal or vegetable. The best way to get rid of such refuse matter is to **bury it**; it can do no harm under the ground.

3. Next, it must be seen to that there are no drains or dirt **inside the dwelling** that will poison the air when it does come in. Keep nothing within to rob the air of its life-giving properties, except yourselves and your fires.

4. Then, to **get the foul air out**. Accustom yourselves to keep the upper sash of your windows open a tiny crack, night and day. You need not fear a draught: the pressure of the foul air pushing out, backed by the cold air pushing in at other openings, will prevent the outer air finding room to get through. If you think it unsafe to leave the window unfastened, then bore a row of holes with a gimlet all along the upper part of the frame, and this will answer nearly as well.

5. Now about **letting the pure air in**. This will cause you the least trouble; for it will come in through every crevice, crack, slit, and key-hole. It must fill the place of the warm air rising up; and if every part of the house is pure and sweet, this is generally enough. You cannot get the foul air out faster than the cold air will force itself in.

6. But if the house is not all your own, that is

not enough. You cannot make sure that the air in other parts of the house is pure; other people may be less particular than you are. When you fear this, open the bottom sash every now and then, and let the pure air in from the outside.

7. Miss Nightingale says: "Always air your room *from the outside* if possible. Windows were made to open; doors were made to shut. Doors open into passages and staircases, the air of which is used by every other person in the house. Very often by setting open the door of a sitting room you only admit a rush of air more impure than that already existing; then air your rooms with outside air."

QUESTIONS.—1. Is it possible to do without these mechanical aids to ventilation? What is imperative to enable us to do so? 2. How must the air which comes in be kept pure? How should any refuse matter be disposed of? Why? What refuse matter is likely to accumulate in a dwelling-house? 3. What should be done to keep the air from spoiling when it is in? How do inmates and fires act on the air? What is the remedy for this? 4. What is the best way of letting the foul air out? Why should it be the upper sash? Why is there no fear of a draught from the upper sash? How large an opening should be left? If it is unsafe to leave a window unfastened, what is the next best plan? 5. How will the pure air get in? Why will it force its way in? 6. What is the danger if you are only in lodgings? Where must your pure air come from then? 7. Why does Miss Nightingale advise the use of outside air only? What does she say of doors and windows? What is often the consequence of setting the room door open?

9.—WARMING.

1. THERE is no better ventilator than a chimney, when a small fire is kept burning in the grate. The air all around gets heated, and immediately passes up the chimney; other air, pressing on to take its place, gets heated in its turn, and so a constant

change goes on, which keeps the atmosphere of the room pure. If a considerable number of persons sit in a room without a fire, the air soon begins to smell foul; while the same number may sit in a room with a fire burning, and no unpleasant odour will be perceptible.

2. But fires are useful not only for the purpose of ventilation, but to enable us, in cold, damp weather, to **regulate the temperature** which surrounds the body. If we could always keep that at the same degree of heat in all places, and at all seasons of the year, there would be nothing to fear from draughts and colds. But in our climate the temperature is especially subject to variations.

3. By fires, in winter, we can increase the temperature of the air around us till it rises as high as in summer; but of course this is only the case in the apartment in which the fire burns. If we have been enjoying the warmth of a room where the temperature is 70°, and then pass suddenly into another place where it is many degrees colder, we must not wonder if we take cold. **Sudden change** does the mischief.

4. Yet it is necessary that we have fires, else by keeping constantly in a cold chilly atmosphere, we shall reduce our own internal heat, and suffer in consequence. We should avoid large fires, and, if possible, regulate the heat of the apartment by the use of a thermometer,—which may be obtained at the cost of one shilling.

5. No person should expose himself to sudden changes of air without putting on additional clothing, least of all delicate persons. It is common to see

persons who are very warm, from exercise or other cause, go into a current of air to cool themselves, and actually throw off part of their clothing, instead of putting more on; and yet they wonder how they get face-ache, neuralgia, sore throat, or rheumatism!

6. There is no better preventive of the evils arising from changes of temperature than daily exercise in the open air; no indoor exercise will compensate for it. Get used to bearing the outside air, and do not make your inside air too hot, and you will not be so susceptible of sudden chills.

QUESTIONS.—1. Explain how a fire proves a good ventilator. Prove that a fire is a good ventilator. 2. Why are fires especially useful in cold, damp weather? What benefit would accrue if the temperature were always the same? Where is the temperature especially variable? 3. What is the danger of sitting in a warm room in cold weather? 4. Why is it necessary that we should have fires at all? How can the warmth of a room best be regulated? 5. How should we protect ourselves when we are obliged to encounter sudden change of temperature? What is a common practice of persons when warm? What does this bring on them? 6. How may we best harden ourselves to our climate? Why will not indoor exercise answer the same purpose?

10.—FIRES.

1. We have seen that a fire in a room is, at certain seasons of the year, not only a luxury, but also an absolute necessity. If there is danger to us from making our bodies too hot, there is also danger from keeping them too cold.

2. A fire is a simple matter, and yet there are a great many powerful agents employed before we can obtain one. It has been said already that carbon is the solid part of all substances—the part that burns when brought under the action of oxygen gas; and

that there is no *flame* produced by the burning, unless another gas comes to help in the work.

3. Now in making fires for warmth, it is necessary that there shall be flame produced, so we have to get the assistance of this *other gas*. The name of the inflammable gas is **Hydrogen**. It is the lightest known thing in the world, and exists wherever carbon exists, until it is expelled by burning. It will ignite as soon as a flame is applied to it; and if it be supplied with oxygen, it flames till it has consumed itself.

4. Hydrogen, and its compounds with carbon, forms the gas which lights up our streets, and every flame in any burning substance. As soon as the flame dies out, it is a proof that all the hydrogen has been consumed, and that only the red-hot carbon remains. No burning anywhere can go on without a good supply of oxygen; if oxygen be denied to hydrogen, it cannot ignite.

5. In setting a fire we use three things: paper or shavings, wood, and coal. We place the paper at the bottom, because it will light most easily, then the wood, and lastly small pieces of coal. The pile should be made complete, and lightly laid together, before the match is applied. Then it will all warm together, and the oxygen will be able to pass through the cracks and crevices. When people stir a closely packed fire, they allow the oxygen to get through it to feed the flame.

QUESTIONS.—1. A fire is a luxury and a necessity: show how it is either. What must be employed before we can obtain a fire? 2. What is carbon? What is absent in the burning of carbon under the action of oxygen? What is necessary to produce this flame? 3. What is the

name of this gas? What is its principal quality? Where does it exist? What must be applied to it to ignite it? What must be supplied to keep it flaming? How long will it flame? 4. When do we use hydrogen? What is the cause of the flame dying out in coal, wood, or paper? What remains after the hydrogen is consumed? 5. What do we use in setting a fire? Why? Why should these things lie lightly and loosely together? If a fire is closely packed it does not burn: why?

11.—FUEL.

1. OUR chief fuel substances are *wood, charcoal, coal, coke, and peat.*

2. **Wood.**—At one time this was the only fuel. It was burned on an open hearth in a very wide chimney, which had seats on the sides of it. The place of honour was the chimney-corner. The large logs which were burned on those hearths were sometimes placed on raised gratings, through which the ashes fell; and on these slices of meat and loaves of bread were cooked. Wood ashes do not impart any smoky flavour, as those of coal do.

3. At the back of these wide chimneys, over the fire, an iron bar on a swivel was fixed, furnished with hooks of various lengths and sizes. On these hooks pots and kettles were hung, and swayed over the fire. Roasting was done on a spit thrust through the joint, and kept turning by a smoke-jack or by little dogs trained for the purpose, called turnspits.

4. **Charcoal.**—Charcoal is wood out of which all the hydrogen has burned itself, or has been expelled by heat, and which has then been cooled. When it is lighted up again, it burns without flame or smoke, and throws out a great heat; just as a clear coal fire throws out more heat than a flaming one. Charcoal

is the pure carbon left after the burning of the hydrogen, and when united with oxygen it gives out carbonic acid gas.

5. It is therefore dangerous to have a charcoal fire burning in any place where there is not a constant supply of fresh air to disperse and diffuse this poisonous gas. Many persons have been suffocated by burning charcoal fires in bedrooms or in close or confined places.

6. Coal, now dug out of the earth, was originally large forests growing on the earth. Ages ago these forests were either overthrown by earthquakes, or embedded by floods, and have remained buried in the earth, every year getting blacker, harder, and denser. It was not till about three hundred years ago that coal came into general use—people disliked it on account of its smoke.

7. The hydrogen necessary for lighting our streets is extracted from coal; and the coke which remains is also used for burning, where clear fires are needed.

8. **Peat** is decayed vegetable matter found on the surface of marshy or boggy places. It contains a large quantity of vegetable fibre, and when well dried makes a good smouldering fire. In Ireland and in many places on the Continent this fuel is especially valued. It is cut and dried in summer, and placed in stacks for winter use.

QUESTIONS.—1. Which are the chief fuel substances? 2. Which is the most ancient fuel? How was it burned? Why did it need so wide a space? What was the chimney corner? What was there for cooking under the burning logs? What advantage have wood ashes over coal? 3. How were pots and kettles fixed over the logs? How did they roast? How did they keep the meat going round? 4. What is charcoal? Why does it burn without flame?

When is it useful? What are its properties? What gas does it produce? Why? 5. When is its use dangerous? What has resulted from using it in sleeping rooms? 6. What is coal? How did these trees become embedded? What changes have they undergone? How long has the use of coal been general? 7. What is coke? 8. What is peat? Where is it procured? What makes it burn? How is it prepared?

12.—PERSONAL CLEANLINESS.

1. WE must now turn our attention to the third great requisite for health—cleanliness. This should exist in ourselves, in our homes, and in our clothing.

2. The impurity to be got rid of on the body either comes from within, washed to the surface by perspiration; or from without, having settled on us in dust, or been imparted to us by something which soils. These impurities are not to be got rid of without some pains and trouble; but if we once bring ourselves to see that the body will suffer from lack of cleanliness as much as from lack of good food, the trouble and pains will be given without grudging.

3. The only effective way of cleansing the skin is by the free use of water. A daily bath is an inexpensive luxury, and wherever it can be enjoyed the comfort and health derived from its use will more than repay any amount of trouble or self-denial it occasions.

4. Where there is a proper sense of delicacy and self-respect, it need be made no difficulty even in a house where every room is occupied; and the giving up of a selfish pleasure or hurtful gratification by one member will provide the necessary vessels and towels for a whole family.

5. Where the difficulty cannot be overcome, each person can yet thoroughly wash the body every day with a piece of coarse flannel and a little water. One part should be washed at a time, and the skin briskly rubbed with a coarse towel, and then the part that has been operated upon should be covered with its clothing. The skin must be cleansed, unless you wish to coat yourselves over with a filthy varnish.

6. **The hair** should receive a good share of attention. It is a beautiful ornament, when beautifully clean. At least once a week it should be washed; and the daily combing and brushing should never be neglected. The nails and teeth should be cleansed with a brush. If the nails were kept nicely cut, the ugly black rim of dirt so often seen round pretty little fingers and thumbs would be done away with. Attention to these matters greatly increases our comfort and our self-respect.

QUESTIONS.—1. What is the third requisite to health? Where should it exist? 2. How is the body defiled by dirt? What must be done with these impurities? What must we feel convinced of before we shall like to take the trouble to be perfectly clean? 3. How must the skin be cleansed? Which is the best way of doing this? How will the use of it repay us for any trouble in procuring it? 4. What feelings will prevent any difficulty where several share one room? 5. Can we be clean without a bath? How? What is imperative in the matter? 6. What should be done to the hair? The teeth? The nails? How may dirty nails be prevented?

13.—CLEANING THE HOUSE.

1. It is a very difficult matter indeed to be only a little clean. A great deal of pains is expended and trouble is taken, and after all one is in much the same state as those who are very dirty. People who

are a little clean have a grand turn out every week—generally on Saturday—and leave all such business to that one day. People who are altogether and thoroughly clean are those whose habit consists in keeping things clean when they are clean.

2. These people go through their work regularly, dividing it so that some portion of it falls to each day of the week. No matter where they may be working, the other part of the house is sure to be in neatness and order.

3. They remove the dirt and dust of each day; they know it will not be so easy to do that when it has been allowed to accumulate two or three days.

4. They are careful to avoid all slops, splashes, and dirty foot-marks; to remove all stains or soils as soon as they are made; and to remedy all little upsets or accidents as soon as they occur.

5. There are two kinds of dirt in a household,—**wet dirt**, and **dry dirt**. The first does the most mischief. Dry dirt can be picked up and carried away; wet dirt soaks into boards, carpets, and furniture.

6. Miss Nightingale thinks that the cleanest floors are those that are only waxed and polished, because no wet will soak into them and carry impurity down with it, and all dry dirt can be rubbed off them. But a good scrubbing-brush and water will make boards white as milk; and to English eyes they look quite as wholesome as waxed ones, and they are less slippery.

7. The boards of rooms in which there are patients suffering from infectious diseases should certainly not be wetted. Wherever the water goes there is danger

that the infection will be carried. Such rooms should be cleansed with a stiff brush and dry sand.

QUESTIONS.—1. What is the difference between being a little and being entirely clean? What is the habit of those who are only a little clean? What is the habit of those who are thoroughly clean? 2. How do they manage their work? What are the evils of having all the house in a muddle at one time? Is the home of a good manager ever in such a state? 3. Why is it wiser to remove each day's dirt and soil on the day it is made? 4. How do cleanly persons save themselves work? What would be the consequence if they did not do this? 5. Which is the worst kind of dirt in a house? Why is it worst? How may dry dirt be got rid of? 6. What is Miss Nightingale's opinion about scrubbing floors? Which floors does she prefer? Why? How are such floors to be cleaned? Why do we like white boards? 7. How should the floors of rooms which are infected be cleaned? Why is this the best way?

14.—WAYS OF CLEANING THE HOUSE. No. 1.

1. **Sweeping floors.**—Floors are swept to get rid of the dust that has been brought in by the feet or blown in by the air, and which only settles on the surface. As all such dust consists of particles of decaying matter, which will render the air impure, it must be got rid of. The object of sweeping is to turn such visitors out of the house altogether, and not merely drive them from one place to another.

2. In sweeping, a soft hair-broom should be passed lightly over the floors. Especial care should be taken to enter all corners and secret hiding-places; and all the dust should be gathered in one place. This accumulated dust should be taken up with a soft brush into a dust-pan, and either burned, buried, or carried away at once to its proper place.

3. Some people's sweeping only shifts the dust

from one place to another ; they jerk and twitch the broom here and there, compelling the greater part of the dust to fly up in the air, and either to come down again after the hurricane-maker has finished, or else to settle in peace and quiet on the walls, ledges, shelves, and pictures.

4. The dust should be removed with as little of the bustle-and-bang principle as possible. Good managers save all their tea leaves, and after they have been well drained scatter them while damp over their floors and carpets before beginning to sweep. The dust clings to the tea leaves instead of rising in the air.

5. A room with a carpet needs a daily sweep even more than a bare floor ; because the dust grinds into the carpet if it is left there, and then it becomes difficult to remove it.

6. **Dusting.**—This is removing the dust from furniture and ledges. It should be done with a dry duster, frequently shaken in the open air. Dust sticks to a wet cloth, and so is carried from one article to another, smearing as it goes. At the same time, if the dry duster is not often shaken in the open air, the dust scratches all polished surfaces in passing over them.

QUESTIONS.—1. Why are rooms swept ? Of what does such dust consist ? What must we do in removing the dust ? 2. What sort of broom is used for sweeping floors ? How should it be used ? Which parts of the room need most care ? What must be done with the dust ? Why should it be carried away at once ? Why should a room always be swept before scouring. 3. How would you describe bad sweeping ? What becomes of the dust in this case ? Would you say that such sweeping removed dust, or only moved dust ? 4. What is the benefit of a gentle handling of the broom ? What helps to lay the dust ? Ex-

plain how they do so. 5. Why should a carpet be frequently swept? In what way does dust injure a carpet? 6. What do you mean by "dusting"? Why should the duster be dry? Why should it be frequently shaken? Why not in the room?

15.—WAYS OF CLEANING THE HOUSE. No. 2.

1. **Scouring.**—A room must not be wetted till all the dirt and dust have been removed and *carried away*. If boards are allowed to get very dirty, they are very hard to clean. Soda makes boards yellow; soap makes them black. Neither should be used unless to remove grease spots. A little clean sand is of use when the floors have been neglected.

2. Nothing stains or discolours boards sooner than dirty water. As soon as water gets too dirty for the hand to be plainly seen in it, it is unfit for cleaning; change it. The boards should be first swilled with water, then scoured briskly with a hard brush the way of the grain. After the scouring, wash over again with water, and dry thoroughly with flannel and house-cloth.

3. **Cleaning furniture.**—Plain deal or white-wood furniture can be best cleaned as boards are cleaned. Wherever there is paint, soap and flannel should be used, but no brush. Most furniture now has a polished surface, and needs to be rubbed that the polish may be kept up. The best things for cleaning and polishing furniture are bees-wax and turpentine, linseed oil, and "elbow grease."

4. The *bees-wax* should be pared into very fine shavings, put into a jar, and covered with *turpentine* and left to stand some hours before being used. It

should be well stirred, until it is as soft and smooth as butter in summer weather. If it is too thick, or improperly dissolved, it sticks in little lumps all over the furniture, and is very hard to remove.

5. Both the linseed oil and the bees-wax preparations should be applied with a piece of coarse flannel, and the polishing should be done with a dry cloth.

6. Bees-wax is the substance of which the bees make their comb. It is melted down after the honey is extracted. Turpentine is the sap or juice of the fir or pine, extracted by slits being made in the bark.

QUESTIONS.—1. What is "scouring"? What must be done with the dust before commencing? Why should not boards be allowed to get very dirty? Should soda be used? Should soap? Why not? When are they allowable? What is the best help in removing dirt? 2. What is the greatest evil in scouring? What harm does dirty water do? How can the water be tested? Describe the way in which boards should be scoured. What is meant by "the way of the grain"? Why should the boards be washed over again after using the brush? How should they be dried? 3. What pieces of furniture are cleaned by scouring? How should you clean paint? Why would you use no brush to paint? What sort of furniture is most common now? How are polished-wood surfaces cleaned? What is meant by "elbow-grease"? 4. Give me a good receipt for making bees-wax and turpentine mixture. What happens if the wax remains in little lumps? 5. Why would you prefer bees-wax to linseed oil? How should either preparation be applied? How should the work be finished off? 6. Where do we procure bees-wax? What is turpentine?

16.—WAYS OF CLEANING THE HOUSE. No. 3.

1. **The metals.**—All the metals used for household utensils are cleaned by polishing; they are *tin*, *copper*, *brass*, and *iron*.

2. All tins may be cleaned with *whiting* wetted with water into a paste, and polished off with a dry

powder of the same. *Rottenstone* and *oil* are also used in the same manner.

3. A thoroughly good paste for cleaning tins is called "Needham's Polishing Paste." A piece of coarse flannel should be wetted, rubbed on the paste, and applied to the article; then after well wiping with a dry, soft rag, it should be polished with powdered whiting.

4. Whiting is refined chalk, finely powdered, or in cakes. *Rottenstone* is a soft kind of stone resembling Tripoli, and valuable for its polishing qualities. Linseed oil is oil pressed from the seeds of the flax plant.

5. Brass and copper articles should be cleaned with sifted *brick dust*, or *rottenstone* and *oil*. It was once common to use vitriol for cleaning copper, but it is a dangerous liquid, and the vessels cleaned with it soon tarnish again.

6. Polished steel articles are best cleaned with *soft soap* and *emery powder*, or fine emery cloth. Emery is heavy iron ore found in masses mixed with other minerals. It is ground into powder in mills, and is much used for polishing.

7. All iron vessels and grates are kept polished by means of *black lead* and brushes. As little as possible of the black lead should be used, with only enough water to mix it. If too much black lead is used, it is wasted; if too much water, it increases the labour and wears out the brushes.

8. Black lead is a valuable mineral substance found between layers of slate. It is a kind of carbon. The principal mine that produces it is in

Cumberland. It is opened very seldom, for it is said that a man can raise £2,000 worth in a single hour.

QUESTIONS.—1. What are the principal metals used for household purposes? 2. How may tins be cleaned and polished? Describe the process of cleaning by rottenstone and oil. 3. What is a good paste for cleaning tins? How is it used? 4. What is whiting? What is rottenstone? What is linseed oil? 5. What other metals can be cleaned with rottenstone? What should be done to the brick dust before it is used? Why? What are the objections to the use of vitriol in cleaning copper? 6. How would you clean steel articles? What is emery? How is it prepared? 7. How do we clean iron articles? What caution is necessary in the use of black lead? 8. What is black lead? Where is the principal mine? What is said of its value?

17.—CLEANLINESS IN CLOTHING.

1. A GREAT deal of the impurity brought to the surface of the skin is of an oily, greasy nature. This is absorbed by the clothing worn next the skin, and causes the dirt which settles from the outside to stick to it. Clothing thus soon becomes soiled, and should be frequently changed.

2. A good deal of the outer clothing of men and boys will not bear washing without injury. It should be brushed carefully and often, and any spot of dirt or grease sponged off, and all unnecessary stain avoided. At the same time, in selecting clothing for work, preference should be given to material that will wash.

3. Cleaning clothes by **washing**, though effectual and necessary, is not pleasant work. It is hard to remove what laundresses call "flesh dirt;" and if the hands are not seasoned to the soda and water by habit, the skin becomes tender, and breaks in the rubbing.

4. There have been many inventions to supersede this rubbing,—washing powders, and other receipts. The most famous, for a time, was a London merchant's "Washing Secret ; or, how to do a six weeks' washing before breakfast, without any rubbing at all." He sold a preparation, consisting largely of lime, which was put into the water of the boiler with the clothes, and the dirt was *stewed* out of them.

5. All washing-powders contain lime, and must injure the fabric of the linen. It is said that it does not do so more than much rubbing. This may be true where the things are very dirty, but lime makes them drop into holes all over. The London merchant's plan soon fell into disuse, which would not have been the case if housewives could have made it answer.

6. The labour of washing has been greatly diminished by the invention of **washing-machines**. One of these is filled with clothes and soap and water. Then, by turning a wheel, the water is forced through them many times in a minute ; of course it carries the dirt with it. Most machines need a man or a strong lad to turn them, but there is little labour besides his connected with the work. .

7. Years ago, people used to "dolly" the clothes ; that is, put them in a tub and pound them. This very soon wore out the clothes.

QUESTIONS.—1. Of what nature is some of the impurity washed out of the body by perspiration ? What becomes of this ? What adheres to it ? What does this do to the clothing ? 2. How should men's clothing be cleaned ? Why cannot it be washed ? What judgment should be exercised in selecting working clothes ? 3. Which is the best way of

cleaning clothes? Is the work very popular? Why not? Which dirt is hardest to remove? What effect has the rubbing and the soda on the hands? 4. What inventions have been introduced to lessen the labour of rubbing? Which was the most famous? What did it profess to do? What was the plan? 5. What do all washing powders contain? What injury is done to the linen by this? What is the best proof that nothing will get the dirt out so well as rubbing? 6. What excellent invention lessens the labour? Describe one such machine. Why is not this plan likely to injure the clothes? 7. What was the old-fashioned way of cleaning by machine? How did this affect the clothes?

18.—WASHING MATERIALS.

1. THE first great necessary for washing is plenty of **soft water**; and where this cannot be had, the trials of the washing day will increase ten-fold. The best water is the rain water, caught from the pipes placed around houses, or by other means.

2. **Hard water** is that which is procured from the earth. It becomes hard by imbibing the properties of the soil through which it passes. The chief of these are lime and sulphuric acid. It may be softened in various ways by the use of **alkalies**.

3. The **alkalies** are **soda**, **potash**, and **ammonia**. They are the salts found in the ashes of burned vegetables and sea-weed. They have the power of neutralizing acids, and of absorbing grease.

4. In washing the hands in hard water, the various properties of the soap and the water do not unite. The sulphuric acid of the water destroys the power of the soda in the soap, and the lime acts upon the tallow or oil of the soap, and the whole floats about in white flakes, without uniting.

5. People in the country save the wood ashes

from their baking ovens, and steep them in the water they intend to use for washing. The alkali in the wood ashes softens the water, as any other alkali would do. Preparing the water in this way is called *setting the lye*. The strength of the lye depends on the quantity of wood ashes used in the water. The water can be softened as easily with lye as with any amount of soda; but the trouble is greater when lye is used.

6. **Soap** is made by boiling soda and tallow, or oil, together. **Soda** is obtained from the ashes of burned sea-weed, and other plants growing on the sea-shore. **Blue** is a preparation of indigo,—a plant producing a beautiful dye, grown in the East and the West Indies, and cultivated with great care. Blue is used by laundresses to counteract the yellow colour imparted to the linen by the use of soap and soda.

7. **Starch** is a floury sediment found in the water in which wheat or potatoes have been steeped. It is used to stiffen linen and muslin. A piece of **alum** should be dissolved in starch intended for dresses and petticoats: they will not then flame if fire be applied to them, but only smoulder.

QUESTIONS.—1. What is the first requisite for washing clothes? Which is the best water? 2. What is hard water? How does it become hard? What are the principal minerals which impregnate it? How may such water be softened? 3. Which are the alkalies? Where are they found? What are their properties? 4. What do you observe in using hard water and soap? Give the reason of this. 5. How do country people soften water? Describe the process. What is this called? 6. What is soap? What is soda? What is blue? What is its use? 7. What is starch? Why do laundresses require it? What simple contrivance prevents thin dresses from readily taking fire?

19.—HOW TO MANAGE A WASHING.

1. THE labour of the washing-day may be lessened by management and forethought. The clothes should be sorted out and soaked the day before they are to be washed. A little soap and soda should be dissolved in some warm water, and the clothes pressed into it one by one. Any especially dirty part should be rubbed with soap as it passes through the hands. No coloured things, except stockings, should be soaked.

2. On the day of "the wash" the copper fire should be lighted early, so that the water may be hot, and the work be begun betimes. This will enable the laundress to avail herself of any good drying weather during the day. Washing consists of four stages: *firsting*, *seconding*, *boiling*, and *rinsing*.

3. **Firsting** consists in soaping and rubbing the clothes till they are clean—every article *on the right side*. One piece of the garment should be rubbed against another piece, and not against the hand or fingers. The more soda there is in the water, the sooner the hands break. When the clothes are well washed all over, they should be turned and wrung out.

4. **Seconding** is to do in fresh water, *on the wrong side* of the clothing, what was before done on the right side.

5. **Boiling**.—If the copper or vessel in which the things are to be boiled is of iron, it should be covered lest it should iron-mould the clothes. A hoop should be provided, a little larger than the

boiler lid, and a bag, made to fit the copper, should be sewn round it. In this bag the clothes should be boiled.

6. The boiling water should have a little soap in it, and just a squeeze of the blue bag to give the clothes a good colour. Only white cotton things should be boiled; coloured things will fade, and woollen things and flannels shrink up in boiling.

7. Clothes should be carefully rinsed in clean hard water tinged with blue, and afterwards wrung as dry as possible, and dried in the open air. Good washing may be spoiled by bad drying.

8. Coloured things, likely to "run," should be rinsed in water into which a handful of salt has been thrown.

QUESTIONS.—1. What two handmaids will be the best helpers in "a wash"? What should be the previous day's preparation? What must be done to very dirty places? How will this preparation lessen the actual labour? 2. Why should the work begin early on the washing day? What are the stages through which the clothes must pass? 3. What do you mean by "firsting"? How should this rubbing be done? What is meant by "broken hands"? How may this evil be prevented? 4. What is "seconding"? 5. How is the "boiling" to be managed? How may you prevent iron-mould, when boiling in an iron vessel or copper? 6. What should be put into the boiling water? Why? Why do we not boil coloured things and flannels? 7. How do you "rinse" the white things? Why should they be wrung as dry as possible? Where should they be dried? Why? 8. How will you manage coloured things likely to "run"?

20.—FOLDING AND IRONING.

1. WHEN the clothes are "on the line," the worst part of the washing business is over, unless the line or the pegs are dirty, when the clothes

may need washing once again. Lines and pegs should be kept in some clean and secure place, and not left in the drying-yard longer than necessary. When taking in clothes, an apron with pockets, or a lap-bag, should be worn, into which the pegs should be dropped, instead of being thrown on the ground.

2. After the **drying**, the clothes should be brought to the folding-table in a basket, turned to the right side again, **damped** by gentle sprinkling, and folded closely together, that the damp may be equally absorbed by every thread. After damping, they should lie close together in the basket for some hours; for unless the damp has time to penetrate, they will not iron well.

3. All articles of house linen without buttons—such as sheets, table-cloths, and towels—may be **mangled**. These should be carefully folded and counted, as they are generally sent out and mangled at so much a dozen.

4. Articles of wearing-apparel should be **ironed**. The object of ironing and mangling is to make the surface smooth. A smooth surface does not present so many irregularities to catch the dirt as a rough one.

5. Clothes not thoroughly rinsed from soap and soda will readily scorch under the iron, and also turn yellow.

6. To prevent starched things from sticking, a small piece of borax, or a piece or two of loaf sugar, should be dissolved in the starch. Some people stir the hot starch with a tallow candle for the same purpose.

7. The old-fashioned way of heating irons was to put them before the fire on "the hanger." A great improvement on this plan is to heat them on the ironing-stove, with which most cottage ranges are now fitted. These stoves require much less coal than the larger open grate.

8. Irons are of various kinds,—the flat iron, the box iron, and the slipper iron. The box iron is a case into which a red-hot heater is put, so that the surface of the iron can be kept perfectly bright, because it never goes near the fire. The slipper is a kind of case, also kept bright, into which the ordinary flat irons are fastened with a spring. Both these inventions are meant to keep the clothes clean: where the stove is used they are unnecessary.

9. There are many other machines used in getting up linen, the principal of which are the italian iron, the goffering iron, and the crimping machine.

10. Washing and ironing demand from us much pains and trouble; but the comfort of clean clothes, to ourselves and those we love, more than repays us for both trouble and pains.

QUESTIONS.—1. Why is great care necessary to keep the lines and pegs clean? How should they be managed? What will prevent the need of dropping the pegs? 2. What is to be done to the clothes after drying? Describe how this is done. Why is it necessary? 3. What is meant by "mangling" clothes? Which clothes only can be mangled? What is the advantage of this process? 4. Why is it necessary to mangle or iron clothes? 5. How will the ironing show if clothes have not been perfectly rinsed? 6. What various plans are used to prevent starched things from sticking? 7. What is the old-fashioned way of heating irons? What is the modern improvement? 8. Name the various kinds of irons. Describe the box iron, and the slipper iron. Where are they unnecessary? 9. Name other machines used in getting up linen. 10. What is the return for the trouble caused by washing and ironing?

PART III.

1.—HEALTH AND SICKNESS.

1. WE all have dear ones belonging to us whom we desire to make as happy as possible. What is the blessing that will most conduce to earthly happiness? Not riches, not pleasure, not friends, but **perfect health**. This is the greatest of all blessings. None of the others can be enjoyed without it. There are very few persons indeed who can say, "I am always well." How is it that so few possess what every one desires to have? What makes so many people sick and ailing?

2. There is scarcely any sickness or suffering which could not have been prevented, though we are quite unable in many cases to trace it right back to its beginning. There have been given to us certain **laws of health**,—unalterable laws,—laws with regard to our work, our food, our drink, our exercise, our recreation, our everything. We cannot infringe one of these laws without injuring ourselves; and if we attempt to do so, we must suffer.

3. It is very sad that so few people take the trouble even to find out what these laws are. They

take far more pains in learning to manage their tools, their plants, their animals, and their journeys, than they do in learning the laws of health.

4. Very much of the household health depends on the mothers and sisters, but Dr. Lankester says this of them: "Information as to the laws of health should be given to girls. It is the girl that becomes the mother. Half the children born in England die before they reach the age of five; and I have no hesitation in saying that this large mortality is due, not to cruelty and vice, but to ignorance. One of the great causes of the prevalence of preventable disease and death is the utter ignorance of females of the laws which govern healthy life."

QUESTIONS.—1. What does our love for our friends make us wish to do for them? Which is the greatest of all earthly blessings? Why is health the greatest? Have many people this blessing? 2. What may be said of almost all sickness and suffering? Can we always trace the beginning of the evil? What have been given to guide us? What sort of laws? To what do these laws refer? What happens when we do not attend to these laws? 3. Are people well acquainted with these laws? What do they study far more? 4. Upon whom does the household health depend? To whom does Dr. Lankester say special information on the subject should be given? What is stated about the mortality among young children? To what is the sad fact attributed? To what does the same physician attribute the greater part of the prevailing diseases?

2.—CAUSES OF SICKNESS.

1. We do not mean to say that it is always our own fault if we are sick and suffering; but it is almost always somebody's fault. There are life-long sufferers from injured spines, diseased bones, lameness. These ailments have most likely been caused by accident, and I have never heard of an accident

of any kind that could not be traced to something wrong in somebody.

2. There are the sufferers from various fevers and infectious diseases. All these diseases began where there were foul air and bad drainage; and no matter how far or widely they may spread, if they had not been allowed to begin, they could have done no mischief. Those who neglect ventilation and drainage have much to answer for.

3. There are those who are laid early in the grave by consumption, those who suffer from rheumatism, from neuralgia, from inflammatory attacks in the chest, throat, and lungs; yet all these diseases probably began in a cold, perhaps imprudently caught and then neglected.

4. Again: there are those who suffer from internal diseases, complaints of the stomach and liver; and most of these may be traced to an improper use of the good things God has given us for our food,—taking in excess that which is only needed in moderation, which is really gluttony.

5. Then there are those who suffer in almost all other ways because they cannot get the necessities the body requires. They cannot get them in infancy and childhood, and so they grow up weakly and ailing, and are thus hindered from procuring them for themselves after their childhood is over. And surely this is **somebody's fault** too—somebody is selfish, or ignorant, or careless, else in this well-stored world of ours there would be more than plenty for all. We are all apt to forget that our doings have an influence upon the well-being of others.

QUESTIONS.—1. Is it always our own fault that we are ill? What life-long evils are the result of accident? To what may these accidents be traced? 2. What may be said of all infectious diseases? Who are to blame in this matter? 3. What diseases have their beginnings in a cold? What caused the cold to develop into fatal disease? 4. What complaints arise from the abuse of food? What would you call such abuse? 5. Which of all sufferers are most to be pitied? Why have they no power to help themselves? Whose fault is that? Is it wrong to wish for *enough*? Why not?

3.—HEALTH AS AFFECTED BY FOOD.

1. It is quite time that girls and women woke up to the importance of the work they have to do as regards "health." All the lessons in this little book have been written to help them to understand this. Let us go over them again with special reference to this subject.

2. **Health cannot exist in the body that is badly fed.** Food has several purposes to carry out in the body. You know what they are, and that the food which answers one purpose will not answer another purpose. It is also necessary that only the proper proportions of each kind of food be taken. Too much of one kind will do harm as surely as too little of another kind.

3. Dr. Lankester says that each grown man requires, in twenty-four hours, "4 oz. of flesh-forming food, 12 oz. of starchy food, 5 oz. of butter and fat, 2 oz. of sugar, and 1 oz. of mineral substance."

4. For a time a man may persist in taking any food, without regard to its necessary proportion, and Nature rights the matter herself; but if the course is persisted in, suffering must ensue. And as much evil is caused by taking too much as by taking too

little. We require so much, and no more,—so much, and no less.

5. If the body suffers from **too much**, the stomach is overtaxed, the blood is heated, the digestive organs are weakened by excess of work, and at last disease settles in the parts that are ill used.

6. If the body suffers from **too little**, there is weakness, bad circulation, and depressed spirits. A body badly nourished is not only more likely to take disease, but also to sink under it, than one whose diet is properly proportioned.

7. Food should be **eaten slowly**, and **thoroughly masticated**. From little glands in the mouth moisture is poured on the food. If the food is not thoroughly masticated, the moisture has not time to act upon it, and the work of the stomach is increased. There are no teeth in the stomach. Those who leave the chewing to be done after the food leaves the mouth, must expect pain in the chest, pain in the side, headache, and bad temper.

8. Warm foods are best. The stomach needs its own warmth for itself. It has none to spare to assist in warming food. The practice of eating ices, though very pleasant, is not a good one, as the heat taken up in melting the ice in the stomach interferes with digestion.

QUESTIONS.—1. Why should the importance of girls' own work be impressed upon them? 2. Who cannot expect to be healthy? What does food do for the body? What may be said of the *too much* and *too little* of any kind of food? 3. What, according to Dr. Lankester, is the amount of each kind of food necessary to a grown man? 4. Does a man feel immediate effects from imprudence in taking food? 5. What is the result of taking too much food? 6. What is the result of taking too little? 7. How do people suffer who do not thoroughly masticate their food? 8. Why are warm foods best?

4.—HEALTH AS AFFECTED BY DRINK.

1. THE nourishment extracted from our food is floated to the various parts of our body by the blood. In every hundred parts of blood, seventy-six parts are water. Where does this water come from?

2. All our solid food contains at least one-half its weight of water. If you purchase one pound of meat, and dry out all the moisture it contains, you will find that what remains will not weigh a quarter of a pound. All flesh is something like the inside of an orange,—little cells holding juice. How little remains of an orange when the juice is gone!

3. Besides the moisture we take with our food, we drink a great deal of water. Most of our beverages are only water to which some flavour or power has been imparted. Tea and coffee contain a substance which soothes the brain. We feel that they comfort and refresh us when we are fatigued.

4. Although water is so essential to our health, there is great difficulty in obtaining it pure. A great mass of people settle in one place, and they soon consume all the natural water supply of that place, and then they have to make schemes and plans to fetch it from a distance. This water gets polluted in its course. Whole districts have been devastated by cholera and typhoid fever, which have sprung from the use of water impregnated by sewer leakage.

5. Water is supplied to us from rivers and from springs, and both kinds are subject to pollution. Rivers are polluted by decaying animal matter, which either dies in them or is thrown into them after it

is dead. Spring water may be rendered unwholesome by the nature of the soil through which it flows. Some waters become so impregnated with mineral properties as to be used only as medicine,—such are the waters of Bath, Clifton, and Cheltenham.

6. Water may be purified by boiling or by filtering. Any poor man can make **Dr. Lankester's filter**: "A large garden flower-pot, with a piece of sponge in the hole at the bottom, placed on two pieces of wood over a clean pail: first, put in it a layer of charcoal powdered, and then a layer of clean sand, each about two inches thick: pour the water in at the top, and let it drain through."

QUESTIONS.—1. How is the nourishment in our food conveyed through our bodies? What proportion of the blood is water? 2. How much water does solid food contain? How could this be proved by simple experiment? To what may flesh be compared? 3. In what other way do we imbibe moisture? Why do we use tea and coffee? 4. What difficulty exists with regard to water? How is this to be accounted for? How are towns supplied with water? How is such water sometimes polluted? What is the consequence? 5. Where do we obtain water? How is river water polluted? How is spring water rendered unwholesome? What are medicinal springs? Where do some of them exist? 6. How may water be purified? Describe **Dr. Lankester's poor man's filter**.

5.—HEALTH AS AFFECTED BY AIR.

1. THE body may suffer for a time after eating poisonous food, or drinking poisoned water. **Poisoned air** acts more quickly. I knew a man who descended into a well where carbonic acid gas was confined, and who was taken out dead in less than three minutes. All poison becomes less dangerous

the more it is diluted. So poison-vapours diffuse themselves through the air, and the further they spread the less strength they have.

2. Poison is poured into the breathing-air from all decaying matters, and from the bodies of all persons infected with contagious diseases. We should be particular at all times to perfect our ventilation, and keep our air pure; but we should be especially so when we know that any epidemic is raging in the neighbourhood.

3. Pestilential breezes may come to us, and if they find only pure air to mix with, they diffuse themselves and lose their power; but if, on the contrary, they meet with air already contaminated by filth or bad odours, they plant themselves amongst us like seeds in ground ready prepared, and diseases will spring up unbidden.

4. Those who are constantly deprived of the blessing of pure air,—by defective ventilation, bad drainage, close work-shops and work-rooms, or by crowded sleeping-apartments,—are weary, irritable, lack energy, and seem incapable of great exertion. Their whole system craves something to take the place of that they are deprived of. Numbers first begin to use stimulants because they have lost the beneficial effects of pure air.

5. In selecting a dwelling, convenience, prettiness, cheapness, should all be made to give way to the question of the *health* of the house and the locality.

QUESTIONS.—1. Which poison acts most quickly? What lessens the power of poisoned air? What property in the air helps us in this case? 2. Which are the principal ways of poisoning the air? When should we be most particular as to perfect ventilation? 3. How

is infection carried to us? How are they rendered comparatively harmless? Where are they sure to plant themselves and flourish? 4. What is the effect of constantly breathing impure air? What does the want of a good atmosphere create? 5. What should be made the first consideration in choosing a dwelling-house?

6.—HEALTH AS AFFECTED BY CLOTHING AND CLEANLINESS.

1. A BODY that is constantly suffering from cold cannot long remain in health. In a wonderful way the inside warmth of the body is kept up by the consumption of the food we eat. But if the outside of the body is continually brought into contact with cold objects, its warmth is drawn off from it, and its necessary healthful temperature is reduced: to prevent this, we either warm the surrounding temperature, or we encase the body in **warm clothing**.

2. Extremes of heat and cold must be avoided. It is better to depend on the warmth produced by warm clothing and exercise, than on that gained from the fire. It is quite possible to sit by the fire till we get chilly, while a quick walk amidst ice and snow makes the body glow with healthful warmth.

3. If the surface of the body is subjected to chills, the flow of perspiration and the circulation of the blood are checked. If any of the blood-vessels are overloaded, inflammation begins at the affected part.

4. When the weather sets in very cold, numbers of old people and young children die from its effects; diseases of the lungs and bronchial affections become prevalent. The temperature of the skin is lowered,

and the circulation being diminished near the skin, the blood is driven inwards, and those vessels getting too full, inflammation and congestion occur.

5. The parts which suffer most from the influence of cold are the lungs, the heart, the brain, the liver, and the kidneys.

6. The daily washing and bathing, before spoken of, render the body less susceptible of cold and chills, besides keeping the pores of the skin free from all obstruction, and enabling the perspiration to do its work well. The skin cannot be thoroughly clean in dirty clothing, and the clothing cannot be thoroughly clean in a dirty house.

QUESTIONS.—1. What is the term we use when people suffer or die from cold? Why do we call it perishing? How is the inside warmth kept up? How is the body protected from the effects of outside cold? 2. What danger is there in subjecting ourselves to extremes of temperature? Which is the best way of producing warmth? What feeling is often produced by sitting by the fire? 3. What is the evil of a chill on the surface? What does this cause? 4. What is noticed as soon as cold weather suddenly sets in? What is the cause of this? 5. Which parts of the body suffer most from exposure to cold? 6. What daily habit has the effect of bracing the body and making it less likely to take cold? What other good does it do? What three things must be well looked after before we can be perfectly clean?

7.—HEALTH AS AFFECTED BY FASHION.

1. If the body be rightly nourished—be supplied with proper food and good water, breathe pure air, be protected from cold, and kept beautifully clean—there is little doubt that it will be healthy and strong. When it is not so, it is generally the effect of either fashion or imprudence.

2. Following *fashion* consists in doing what others

do and wearing what others wear, with utter disregard to the demands of nature or of health. The following are examples of foolish fashions :—

3. It is a foolish fashion to try to make **artificial waists**, by compressing them in steel and whalebone frames called **stays**. By these instruments the ribs are squeezed, and contracted, and driven out of their natural place. They in their turn have to displace some other part of the body, so the shoulders are forced up, and the digestive organs are impeded. There is far less injury to health from wearing iron shoes like the Chinese lady, or rings through the nose like the savage, than in wearing tight stays.

4. It is a foolish fashion to load the head with weight in the shape of **pads** and **false hair**. The hair is the natural ornament and covering, and a light, loose-fitting hat or bonnet, is all that is required ; more than this gives a *bald* as well as an aching head.

5. It is a foolish fashion to wear **tight collars**, or **stocks**, or **ties** round the throat. All such coverings should be soft, light, and loose.

6. It is foolish to cover warmly most of the body, and then to leave other parts **entirely bare**. The throat diseases, which have so increased of late years, may be attributed to the fashion of leaving the neck exposed in all weathers.

7. **Tight shoes** bring corns and bunions. **High heels** throw the body into a stooping posture, and compel one to walk, like a gorilla or an orang-outang, on the toes.

8. During the reign of **crinoline** more than three

thousand persons lost their lives in one year by their distended clothes taking fire ; and many more were maimed for life from the same cause.

QUESTIONS.—1. What are the four great helps to health? What often hinders the good these helps would do? 2. What is "fashion"? Why is it a folly always to try to be fashionable? 3. Which are some of the most foolish fashions? What is the evil of wearing tight stays? 4. What are the evils of pads and false hair? What is hair given to us for? 5. What sort of clothing should be worn round the throat? 6. What mischief is done by leaving the throat exposed? 7. How are corns and bunions first formed? How do high-heeled shoes cause an unnatural gait? 8. What melancholy fact is recorded of the reign of crinoline?

8.—HEALTH AS AFFECTED BY IMPRUDENCE.

1. OF all imprudences there is none so culpable as that which brings suffering on ourselves and others. This **imprudence** is generally the result of carelessness and forgetfulness of the following facts :—

2. The body is less capable of resisting disease in any form when it is **exhausted**. A person who is hungry or weary is much more likely to take an infectious disorder, or to suffer from cold, than one who is satisfied and refreshed. No one should enter a sick-room with an empty stomach, or after violent exercise.

3. The most common of all ailments amongst us are those which are caused by "**catching cold**." These evils arise from chills on the surface checking the perspiration or the circulation of the blood ; and such chills are generally received in a draught.

4. The warmer the body is, the greater is the danger likely to arise from draughts ; yet it is

when people are hottest, especially young people and children, that they are most anxious so to expose themselves. Drinking cold water when heated is a very common way of bringing on suffering, by chilling the blood.

5. Thin shoes, and therefore cold and damp feet, are faithful servants of colds. All damp clothes should be changed as soon as possible. Getting wet does not do us half the harm that getting dry does. We may get wet, and if we keep in exercise till we can put off the wet garments, we take no hurt. If we stand or sit in wet clothes, then we suffer for it.

QUESTIONS.—1. Which is the worst kind of imprudence? Of what is such imprudence the result? 2. When is the body most likely to take disease? Why should an exhausted person refrain from entering a sick-room? Why should a person who is tired keep out of draughts? 3. Which are the most common ailments among us? What may be said of our climate? What should this cause us to be? What is the effect of chills on the surface? 4. When is danger from draught the greatest? What is the common practice of people who are too warm? Why should no one be exposed to cold, outside or inside, when heated? 5. How should the feet be cared for? If we unavoidably get wetted by rain, what should we do immediately? Why should we not suffer our clothes to dry on us? If we cannot remove our damp clothes at once, what must we be careful to do?

9.—HEALTH AS AFFECTED BY INTEMPERANCE.

1. MANY a one who reads the heading of this chapter will say at once, "I am not likely to injure my health in that way." But let us understand what **temperance** means. "To be temperate, is to keep the appetite and the passions under such per-

fect control that you never suffer them to run into extremes." Therefore people may be intemperate in the matter of eating and drinking, in being angry, in loving and hating, ay, and even in working, and learning, and taking pleasure.

2. All intemperance is hurtful to health. The lowest and most degrading kind of intemperance is that which springs from indulging the appetite and the passions. How detestable is the sight of a glutton or a drunkard! How sad the effects of violent temper and rage!

3. Every one knows how over-eating destroys health; and how the habit of drunkenness destroys happiness, peace, health, and life. If all were supplied with proper nourishment and sweet fresh air from their birth, the craving for strong drink would seldom arise. People take it first as a necessity, and gradually feel that they cannot do without it.

4. The body needs nourishment. A gallon of beer does not contain as much nourishment as quarter of a pound of meat; and many physicians declare that spirits contain no nourishment whatever. They act as a stimulant, quicken the flow of blood, and send a glow through the body, and this is mistaken for the power of health. All the time, however, they work mischief in the blood, on the nerves, and on the brain. An intoxicated person has no more control over his actions than a madman. It is said that over one thousand persons die in Great Britain every year from the use of spirits.

5. Fits of passion or bad temper injure the health. Have you not noticed the trembling and

pallor even in a little child who has given way to these feelings? You may be intemperate even in your love of reading. Whenever you are so engrossed by any pursuit that you feel you must follow it, that pursuit, however harmless in itself, is your master, and you are its slave; you are intemperate in the use of it, and you will suffer.

QUESTIONS.—1. What is the meaning of “temperance”? In how many ways may we be guilty of intemperance? 2. What effect have intemperate habits upon the health? Which are the lowest kinds of intemperance? What makes a man lose his nobleness and become disgusting? 3. What is the effect of over-eating? In what way may misery be traced to drunkenness? What encourages the desire for strong drink? Why do people first begin to take it? 4. How much nourishment is contained in a gallon of beer? What is the opinion of most physicians with regard to the nourishment found in spirits? How many deaths are caused by the use of spirits every year in Great Britain? 5. How do fits of passion injure the health? How may we know when we are becoming slaves to any habit?

10.—KINDS OF SICKNESS.

1. WE have seen that the care of the family health falls almost entirely on the females of the household. They have to see to it that there is everything to promote health and nothing to injure it. It is a mistake to suppose that every one ought to have certain diseases. “Children are bound to have the measles,” said a mother. Why are they bound to have the measles? There is nothing gained thereby. We shall notice a few of the ways in which disease shows itself.

2. (a) In cases of blood-poisoning.—Blood may be poisoned by improper food and drink, as well as by foul air. Air that is fouled by bad drainage, im-

perfect ventilation, decaying matters, or by emanations from infected persons, is sure to bring disease of some kind. The principal of these diseases are the **eruptive fevers**—as small-pox, measles, scarlet fever, chicken-pox, nettle-rash, and rose-rash; and the **inflammatory fevers**—as typhus and typhoid fever.

3. (b) **The diseases which spring from catching cold**—as influenza, sore throat, cough, whooping-cough, bronchitis; inflammation of the lungs, the side, the bowels; consumption, neuralgia, and rheumatic affections.

4. (c) **The diseases which arise from derangements of the bowels.**—These may be traced to the habit we have of eating without any regard to the demands of nature—taking too much of one thing and too little of another, overloading one day and stinting the next. This causes indigestion, spasms, bilious attacks, constipation, and diarrhoea.

5. If the health is impaired from either of the latter causes, it will more readily fall a prey to the first. Persons who are careless about catching cold, and about their eating and drinking, are the first to suffer when placed in the way of contagion. No matter in what way the health is impaired, a weakened or reduced body will readily fall a prey to any disease which a healthy one would have power to resist.

QUESTIONS.—1. What is a popular delusion about certain diseases? 2. How may blood be poisoned? What are diseases called which are produced by blood-poisoning? Name some of these diseases. How do you distinguish between the eruptive and the inflammatory fevers? Which throw off the poison on the surface? Which retain the poison

within? 3. What are the principal diseases which spring from catching cold? 4. What are the principal diseases which spring from a deranged stomach? To what may these diseases be traced? 5. Why is there more danger to careless persons? Can you explain why this should be so?

11.—WHAT HURTS THE BRAIN?

1. So essential is it that the health of her household should form the chief study of the good home manager, that we shall further notice a few of the most important parts of the body, and the things likely to injure them.

2. The seat of all reasoning power and thought is the **brain**. It is a soft, pulpy mass, placed in the skull—a strong box consisting of twenty-two bones. Joined to the brain, and passing down the back-bone, is the spinal cord. And from these two proceed numberless little soft white fibres like threads, which are called **nerves**, and which extend all over the body. The nerves from the brain pass into all parts within the skeleton; those from the spinal cord, to every part of the body outside the skeleton. These nerves are so numerous that three thousand of them are found in one inch of space!

3. The brain and the nervous system have been compared to the electric telegraph and its numerous wires. The wires from all parts convey messages to the centre, sent on by an invisible force called electricity; so, our nerves, running to all parts of the body, receive sensations which they at once convey to the brain, impelled by a force which we do not yet quite understand.

4. What the eye sees, the ear hears, the tongue

tastes, or the nose smells, is at once conveyed by the nerves to the brain; which immediately thinks, reasons, plans, and sets the nervous system in motion to carry out its designs. If the sensation conveyed by the nerves is an unpleasant one, under the influence of the brain the eye flashes, the flesh quivers, and the tongue gives utterance. A child is hurt: at once the sensation of pain is conveyed to the brain, and the sudden cry and the flow of tears show its sympathy with the suffering of the body.

5. The brain governs and rules. If any injury is done to the mechanism of the brain, the body lies inactive and senseless. When the brain has lost its power of governing, we are said to be mad.

6. What then is likely to do even a little hurt to this delicate organ?

First, Overwork.—A man may choose an occupation which keeps his brain constantly at work and allows him no relaxation. He may keep on till he is laid aside by brain-fever, with the danger of his mind never again recovering its right balance. A child may acquire such an inordinate love of reading that she may be nearly always poring over books, and thinking of nothing else. In both cases the brain has too much to do. If the man keeps tolerably well, he becomes irritable and nervous, while the child gets peevish and selfish, and both lose their appetite and energy. There is no organ in the body which sooner becomes exhausted from overwork than the brain.

7. *Second, Excitement.*—The brain may be unduly excited by various causes: by bad temper, by plea-

sure, by fright or sudden shocks, and by trouble. In some the organ is much more sensitive than in others: many things which one man could witness or hear without annoyance or horror would blanch the cheek of another man, and set every nerve quivering. Any sensation of the brain affects the whole body: nerves go from it to the heart, and make it palpitate; to the lungs, and quicken the breathing; to the eye, and it is flooded with tears; to the stomach, and its juices dry up; to the tongue, and it cleaves to the roof of the mouth.

8. *Third, Stimulants.*—Nothing acts more directly on the brain than the beverages in common use. Tea and coffee contain a white powder, called severally theine and caffeine, which has been named brain food. Used moderately, they soothe and refresh; used in excess, they excite and weaken the brain, by forcing it to greater exertion than it is capable of. All alcoholic liquors act upon the brain, and, when taken to intoxication, produce temporary, often permanent madness. A wise man becomes a fool, a kind and loving man a brute, under their influence. The more temperately, quietly, and evenly we live, the better it is for our body and our mind.

QUESTIONS.—1, 2. Of what is the brain the seat? What is the brain? In what enclosed? What are the nerves? Show how numerous they are. 3. To what have the brain and the nervous system been compared? 4. What are the messages conveyed to the brain? What does the brain do on receiving them? Give an example. 5. What is the office of the brain? 6. What is the first thing that hurts the brain? Give examples. 7. What is a second thing that injures the brain? Mention some of the causes of excitement. Show how the sensations of the brain affect the whole body. 8. A third source of injury to the brain? What stimulants are most common? What is the effect of tea and coffee taken immoderately? What is the effect of alcoholic liquors?

12.—WHAT HURTS THE LUNGS?

1. The **lungs** are the organs by which we breathe or respire—one on each side of the heart, inside the ribs. They are like honeycomb, full of little cells, which are formed of a delicate membrane, and which are kept full of air by branching tubes connected with the windpipe, called **bronchial tubes**. The cells are surrounded by numberless tiny blood-vessels, which bring the dissolved food to be acted on by the air. It is said that if the blood-vessels in a man's lungs alone were stretched out and joined together they would reach to America and back again, a distance of 5000 miles. The number of air-cells is estimated at over 600,000,000. You can understand that such delicate mechanism can be easily injured. What, then, hurts the lungs?

2. *First, Overwork.*—Constant speaking, teaching or preaching, especially when the lungs are weakened and reduced from any other cause.

3. *Second, Bad air.*—We have spoken of this before, in the forms of sleeping in a tainted atmosphere, working in ill-ventilated work-shops or in crowded work-rooms. We should hear little of "consumption" if all the breathing air were pure.

4. *Third, Dust.*—Dust floats in the air, and is passed with it into the lungs; and the tiny, delicate organs, which are formed to imbibe nothing but gases, have forced into them solid substances. Many trades are most injurious to the lungs because of this. The grinders in the cutlery trade die of diseased lungs, most of them before they are forty, because of the

dust imbibed in their work. Factory hands in the cotton and woollen manufactories suffer from the same cause. Poison is also passed into the lungs in the shape of dust. Makers of wall papers, and artificial flower-makers, when arsenic is used to brighten the colours, suffer in this way; and straw-workers suffer, because the straws are bleached with a preparation of lead poison.

5. *Fourth, Contracted position.*—Persons whose occupation keeps them constantly stooping over their work, as clerks and needlewomen. The bending and the drawing the shoulders forward contract the chest and *shut up* part of the lungs, giving the other part double work to do. A habit of stooping in children should be instantly corrected.

6. *Fifth, Taking cold.*—The most common diseases of the lungs from the effect of cold are inflammation, congestion, and the various bronchial affections. Undue exposure of the throat or chest, damp feet or clothing, bring on these colds, which should never be neglected. A cough is the voice of the lungs and bronchial tubes speaking of inward irritation: it should always be listened to. A neglected cold on the lungs may lead to speedy consumption.

QUESTIONS.—1. What are the lungs? How are they connected with the windpipe? What is their use? Show the large number of blood-vessels in the lungs. At what is the number of their air-cells estimated? 2. What is the first thing that injures the lungs? Mention examples. 3. A second cause? 4. A third source of harm? What trades are injurious on this account? 5. A fourth cause of injury to the lungs? What occupations produce it? 6. A fifth thing that hurts the lungs? What are the most common diseases caused in this way? How are they produced? What is a cough?

13.—WHAT HURTS THE DIGESTIVE ORGANS?

1. It is important that we should remember that when one part of the body is suffering, all the others suffer with it. This is especially the case with the stomach and the other digestive organs. What injures these?

2. *First, Improper food.*—By improper food we mean food which is rendered indigestible by its hardness, caused by bad cooking or otherwise.

3. *Second, Excess of food.*—We may take too much of one kind of food, or we may take too much food altogether; in both cases we overwork the stomach, and therefore we make it weak.

4. *Third, Haste in eating.*—Food eaten in a hurry is not properly masticated; it passes into the stomach to the gastric juice unprepared, which is unfair to the glands containing that juice.

5. *Fourth, Anxiety and trouble.*—Such is the influence of the brain, that the secretions will not flow under pressure of anxiety. No appetite is felt; and if persons force themselves to eat, the food remains in the stomach worse than useless; and if medicines be taken to compel the organs to act, they become still more reduced.

6. *Fifth, Stimulants.*—The constant use of stimulants has often been known to destroy altogether the delicate membrane of the stomach. Even the condiments, mustard, pepper, spices, &c., used immoderately are injurious.

7. Spirits and all alcoholic drinks inflame and ulcerate the coating of the stomach, and harden and

thicken the membranous tissue of which the blood-vessels are made, and so partially close them up.

8. Spirits also act upon, and in time dry up the liver, so that it does not act at all. This disease is called "the drunkard's liver."

9. Spirits are sometimes useful as a medicine, to stimulate in a fainting, exhausted condition, for they act quickly and surely; but persons in health only suffer and do not benefit from their use.

QUESTIONS.—1. What happens when one part of the body is suffering? With what organs is this especially the case? 2. One thing that injures these? 3. Another thing? 4. A third thing? 5. A fourth thing? 6. A fifth thing? 7. What stimulants are most injurious? 8. How do spirits affect the liver? 9. How are they sometimes useful?

14.—THE EYE AND THE EAR.

1. THERE are other parts of the body which need to be guarded against injury. The beautiful mechanisms of the eye and the ear are too complicated to be touched on here, but their preservation should be carefully studied.

2. When the eye is overworked, in common with all our other organs it suffers weakness. Needlewomen, engravers, printers, and all persons who are compelled to pore over their work, should resolutely rest their eyes when they are not required in their business. If the eye be previously weakened, a slight attack of cold will cause inflammation. We all find out soon enough what tries the eyes, and if possible we should avoid it. Children who have been deprived of pure air, cleanliness, and good food, often suffer from permanent diseases of the eyes and eyelids.

3. Deafness, whole or partial, is more common than affections of the sight; and this, probably, because a good deal of carelessness is displayed in the management of the ear, which is of most delicate workmanship.

4. It is highly improper to thrust anything into the ear. Stretched across the internal passage is a beautiful membrane, whose use is to convey sound. So delicate is it that it is liable to injury even from a slight concussion. A box on the ear, or any foreign substance introduced into it, is capable of bursting this membrane, and then permanent deafness is caused.

5. When the ear aches, roast onion or fig should not be inserted, but applications of hot flannel should be made on the outside.

6. Great care should be exercised, in washing, not to wet the inside of the ear, especially in washing children. The outer ear should be washed and dried, but no water should be allowed to enter the passage.

7. An insect sometimes finds its way into the ear. It is best to pour in a little warm oil, which will either suffocate it or bring it to the outside.

8. There is no part of the body which is not subject to its own special ailment; and when, from overwork, ill-feeding, or impure air, that part is weakened, then it is at once predisposed to any such disease. It is like ground well prepared,—any seed of evil sown in it will thrive and flourish.

QUESTIONS.—1. Mention other organs which need to be guarded from injury. 2. How is the eye injured? To what are weakened eyes liable? How are permanent diseases of the eyes often produced? 3. Why is deafness more common than affections of the sight? 4. Why is

it improper to thrust anything into the ear? 5. How should ear-ache be treated? 6. What should be avoided in washing the ears of children? 7. How should the insect which sometimes enters the ear be removed? 8. What predisposes every organ to its own special disease?

15.—HOME REMEDIES.

1. WHEN people are ill, that is no time to try to trace the cause of their ailments; we shall want to nurse them, and make them well again as soon as possible. We must not, in any case, be too confident in our own knowledge or resources.

2. Generally, when sickness breaks out where every care has been exercised, it is something which needs more than home treatment, and no time should be lost in putting the case under proper medical care,—the sooner any ailment is taken in hand the better.

3. But there are some ailments which may be successfully treated at home, especially those which are caused by slight accidents, and which would really suffer by the delay caused by first sending for a doctor. The following are simple remedies for such cases :—

4. **To cure a cold.**—A cold is caused by a chill on the surface of the body. You must endeavour to counteract the chill by warmth. Cover up the skin with warm clothing, and encourage the flow of perspiration. Do not drink any more than is absolutely necessary; the chill has driven the blood inwards, and some of the vessels are overloaded already—you do not need to put more blood into them.

5. A hot linseed, linseed and mustard, or pure mustard plaster, is an excellent counter-irritant when

especial pain or irritation appears to have settled in any part. By its warmth it will draw the blood from the overloaded, inflamed part, to the surface again. A cold is the precursor of so many evils that it should receive immediate attention.

6. **Sprains.**—A sprain is an injury done to the tendons or ligaments of any of the limbs. It is most common in the ankle, the wrist, and the shoulder. The injured part should have perfect rest. If there is much swelling, the part should be bathed with hot water, or have hot bread poultices applied to it. It may be rubbed with liniment, or bandaged, when the swelling has disappeared.

QUESTIONS.—1. What should be our first thought when any one belonging to us falls ill? 2. Under whose care should we be anxious to place the case? Why? 3. Which ailments may be best doctored at home? 4. What is the best way to cure a cold? Why should you try to restore warmth to the skin? Why should you abstain from drinking much? 5. What is a plaster, cataplasm, or poultice? Of what are they commonly made? What are they used for? Why should a cold receive attention at once? 6. What do you mean by a sprain? Where are sprains most common? What is the first step towards a cure? What should be done where there is much swelling? After the swelling has gone down? Why should the limb not be bandaged before?

16.—HOME REMEDIES—(Continued).

1. **Burns and Scalds.**—Of all accidents these are most to be dreaded, because a very great injury may be done by them in a very short space of time. Only a touch from a flame is enough to do much harm. The first thing to do is to smother out the flame with a cloth, rug, or blanket, or any woollen thing at hand.

2. Then remove the clothes gently from the in-

jured parts: if they stick, do not tear them away, but cut the rest of the garment from the sticking part. Place the sufferer in bed; dredge every part where the skin is broken with flour, and cover every injured part closely with cotton-wool, or wadding, sprinkled with linseed oil.

3. The great aim should be to exclude all air from the injured parts. After covering them up close, do not uncover them till ordered to do so. Never break a blister if you can avoid it. Keep the skin whole. A slight burn extending over a good deal of space is much more dangerous than a smaller though more severe one.

4. **Wounds and Cuts.**—The common cuts made in the hands and fingers should be first wrapped up till the bleeding ceases, and then strapped up with sticking-plaster. More serious wounds are made with various tools used in men's work. Some of these, if near a large vein or artery, may cause death by bleeding.

5. When a wound of this kind has been made, something should be tied very tightly round the limb between the wound and the heart, to cut off the flow of blood. When a large artery has been wounded, the patient bleeds to death in a few minutes if the flow is not stopped.

6. **Gatherings and Whitlows.**—These painful formations are caused by scratches, pricks, &c., with a rusty or dirty instrument. The throbbing and inflammation are best dealt with by the use of hot bread-and-water poultices, and by administering a little cooling aperient medicine.

QUESTIONS.—1. Which are most to be dreaded of all common accidents? Why are they so much to be feared? What is the first thing to be done on discovering a person in flames? Why should a woollen article be used? 2. What must next be done? Why must the clothes not be moved when they stick to the flesh? How must the garment be got off? What must be done to every place where the skin is broken? What is the best thing to apply to every part touched by the flame? 3. What should be the great object? Why should they not be uncovered? Why should a blister not be broken? Which is the most dangerous kind of burn? 4. How would you deal with a cut? Which are the more serious wounds of this kind? What especial danger is caused by wounds of this class? 5. How may this danger be prevented? Whose aid should be immediately sought? 6. How are gatherings caused? What are the best remedies for them?

17.—NURSING THE SICK.

1. EVERY woman ought to be a good nurse. To this end she must possess not only kindness, pitifulness, and patience, but a good deal of knowledge and tact. Much has been said about the things that are needful for the healthy; now, whatever may be necessary in order to keep people well when they are well, is far more necessary in order to restore them to health when they are sick.

2. There is a lady who has devoted a good deal of her life to the study and practice of proper nursing, and who has been called "The queen of nurses." Her name is **Florence Nightingale**. She has written a little book called "Notes on Nursing," which no one who has, or may have, anything to do with a sick-room ought to be without. The following are a few of her most valuable hints, briefly expressed:—

3. Restoration to health depends as much on the nurse as on the physician. **Bad nursing kills as**

many people as any disease. A good nurse must attend to everything that in any way affects her patient. Sooner than the sick under her care shall suffer, she will do everything for them herself.

4. (a) **The sick-room.**—This should be spacious and airy, with little carpet on the floor, and none at all under the bed; there should be no curtains or valance; and the window should open both at the top and at the bottom.

5. (b) **The bed** should be simple, not bed piled on bed, but just a palliasse* and a good wool mattress, easily aired and easily made. It should be placed, if possible, so that a view from the window may be obtained from it when desired, and quite out of all draughts.

6. (c) **Quiet.**—There should be no noise in a sick-room. The nurse should wear soft dresses and list slippers; should move quietly, and speak gently. She should never whisper; whispering irritates and strains the attention. If any one comes to the door, do not whisper; let the patient hear if he likes, else he will think you are talking about him.

QUESTIONS.—1. Why should every woman be a good nurse? What are some of the requisites of such a person? What should be remembered with regard to food, drink, air, warmth, and cleanliness for the sick? 2. What lady has given much of her life to the study and practice of nursing? To whom was she especially useful? 3. What does a sick person stand most in need of? What should a good nurse make her first care? 4. What sort of room is best for a sick-room? Why should there be little carpet, and no curtain or valance? Why should the window open at the top and bottom? 5. Why is a mattress, or simple bed, to be preferred? What position in the room should the bed

* Pronounced *pal-yass*; an under mattress, generally of straw.

occupy? Why? What must never be forgotten in choosing its place?
6. In what ways will a good nurse secure quiet to her patient? What is the special objection to whispering?

18.—NURSING THE SICK—(Continued).

1. (d) **Pure air.**—By far the most important requisite for a sick person is a constant supply of fresh air; the ventilation should be perfect, without a draught. It is for this purpose that so many doctors order a small fire to be kept constantly burning, day and night. The window should be kept open at the top an inch or two; and the door should be closed. Air admitted by the door is generally supplied from the other parts of the house after it has been used.

2. When you are obliged to open the door, you must close the window, to prevent a draught; but for ventilating purposes admit *only* the outer air. It is a mistake to suppose that night air is injurious. In large towns it is generally purer than that of the day. Draught does mischief; pure air always does good.

3. (e) **Cleanliness.**—Keep the patient and everything around him beautifully clean. Change the linen frequently, and do not be afraid of washing. Allow no slops to accumulate. Carry away at once everything that is done with,—slops, dirty cups, remains of food. Do not keep within the patient's sight anything which he has to take,—not even drink and medicine.

4. (f) **Rest.**—Allow nothing to disturb your patient. When he is asleep or dozing let no sound

or movement rouse him. Let him dream away the time without interruption. He will be active enough as soon as he is able.

5. (g) Diet.—Sick persons require nourishment at regular intervals, and in small quantities. In cases of great prostration, a teaspoonful of beef-tea, or of arrowroot and wine, should be given twice or thrice in an hour. The patient's likes and dislikes must be studied; and the physician's orders must be carried out. All drinks should be well strained before they are offered to the patient. A crumb in toast and water creates nausea. Everything should be prepared with the greatest nicety, and presented with the greatest delicacy.

6. (h) Light and cheerfulness.—Shade your window with a green blind, but do not make the room gloomy. Do not grudge flowers and bright pictures; not overloading or crowding, but placing one here and one there. And get something fresh every day if possible. How tired one may grow of looking always at the same picture!

QUESTIONS.—1. Which is the most important thing for a sick person? How do doctors often help ventilation? What sort of fire should be kept? What is the objection to air admitted by the door? 2. How must you prevent a draught on opening the door? Why is it a mistake to suppose night air injurious? When only is such air likely to do harm? 3. In what ways must a good nurse be perfectly cleanly? Why will she be especially particular about slops and dirty things? Why should everything to be eaten or drunk be kept away from the sick-room? 4. Why is perfect rest imperative? At what particular times will the nurse especially "mount guard"? 5. What must be the nurse's guide as to diet? How often will some persons require nourishment? What should be done to all drinks? Why? What should be the rule about preparing things for the patient? 6. How should the window be shaded? What helps should the nurse seek to secure a bright, pleasant room? Why is such a room necessary?

19.—WAYS AND MEANS.

1. "I CANNOT afford it." How often do we hear these words! Speak to one class of home-managers of the benefits to be obtained by rightly apportioning the food according to its properties—of the need of a plentiful supply of fresh air—of the luxury of perfect cleanliness, and they will say at once, "It is all very well for the *rich*; but *poor* people cannot afford it."

2. Now, people who can afford to feed themselves at all, can afford to feed themselves properly. In this matter, as in most other matters, "where there is a will there is a way." No one who is industrious, honest, and sober, has any business to live in a state of semi-starvation; it is *somebody's* fault when this is the case.

3. People with large families may often be reduced to great straits, and have to endure many hardships; but when there is any money to spend on food, it depends upon the wife whether that money is advantageously spent or not. The woman who knows how to go to market is not only a "walking savings-bank," but "a treasury of health" to her family.

4. It is not said that the same sort of food is within the reach of every one. All men cannot dine on turtle-soup, young chickens, and asparagus, or other costly dishes; but it is true that the *proper proportions* of *flesh-forming*, *warmth-giving*, and *bone-making* food can be supplied to a family daily, as well with £1 weekly as with £10 weekly. It

is a wonderful provision that there are so many foods which contain the same properties; for if we cannot get one we can get another. If we cannot get *fibrine* every day, we may manage with *legumin*, or *casein*, or *gluten*.

5. It is pleasant and comfortable to have as much change as possible in our food; for the most enjoyable food is sure to do us the most good; and we do not enjoy only one thing long. A good manager will "ring the changes" on what she can get as often as practicable.

QUESTIONS.—1. What is the common excuse of bad managers when their duties are pressed upon them? 2. What people can afford to feed themselves properly? What proverb applies to this matter? What people have no business to want? 3. Whose work is it to choose right food? What may be said of a good market-woman? 4. Can every one obtain the same kind of food? Why not? Is it necessary to health that we should do so? Can we obtain all real nourishment without? By what provision are we enabled to do so? 5. Why should we seek as much change in our food as possible? Why should we enjoy our food? What will a good manager try to do while studying the rightful proportions of food?

20.—INCOME AND EXPENDITURE: AGRICULTURAL LABOURERS.

1. It is generally allowed that agricultural labourers suffer more hardships, in the way of eating and drinking, than any other working men. Here is a true account of how one of their cottage-homes is managed: the folks are living, and are doing now the things described.

2. William and Hannah Brown, their four children, and William's old mother, live together in a cottage, containing two bedrooms, kitchen, and back

kitchen, with wood-house, &c. They have a nice large garden, which they all help to keep in order. They think more of their garden than a grand lady does of her drawing-room; for they get a good deal of their food from it. They plant it with plenty of potatoes, cabbages, pease, beans, broccoli. Besides this, it always contains gooseberry and currant bushes, apple and pear trees, and perhaps fruit of other kinds.

3. Some of this garden produce they sell; the fruit of one early apple-tree always goes to market. With the refuse of all kinds they feed one or two pigs. It is no exaggeration to say that the cottager's garden supplies him with meat and vegetables.

4. William earns 12s. a week (and all the beer or cider he really needs) all the year round; and at harvest-time—for about a month—he earns 30s. a week. Upon the extra earnings they depend for clothing. The weekly money is spent thus:—

	s.	d.
Flour and barm to make 8 loaves.....	4	0
Rent and taxes	2	6
Sugar, 7d.; butter, 7d.; tea, 8d.	1	10
Candles, soap, soda, blacking, 10d.	0	10
Schooling 6d.; coal, 1s.	1	6
For boots and shoes	1	4
	<u>12</u>	<u>0</u>

5. Hannah earns 2s. 6d. every week by going out charing. At harvest-time she earns from 7s. 6d. to 10s. per week; and by the gleanings of herself and the children she gets wheat enough to supply bread for five or six weeks. From the mother's earnings come the family treats,—the bit

of fresh meat for Sunday; the currants for the birthday cake; the sugar which makes jam of the garden-fruit; and the little additions to home comfort.

6. Hannah and William are always managing, always cutting and contriving; but they have always plenty to eat, are tidily clothed, and cosy and healthy. Hannah pays into three clubs for a supply of blankets and coals for winter.

QUESTIONS.—1. Who are supposed to be the worst off as regards food? 2. What is the cottagers' greatest help? What do they procure from their garden? Besides the actual gain it is to them, what else is a garden to them? 3. Do they consume all their garden produce themselves? In what three ways do they dispose of it? 4. What did the cottager's weekly earnings supply to his family? When does he make a "nest egg"? To what is this applied? 5. How does the wife help? What do her earnings procure for her family? Of what benefit is the privilege of gleaning to these families? 6. What are thrifty cottagers obliged to do? What benefits can they always enjoy? How are they helped in winter?

21.—INCOME AND EXPENDITURE: ARTISANS.

1. THE wages of **skilled mechanics** are much higher now than in former generations. Where a labourer earns only 2s. a day, a mechanic can earn 5s. or 6s. Yet in spite of all this there is often most actual want in towns, where most money is earned. There seem to be three reasons for this: 1st, **The rents are higher**; 2nd, **There is no garden**; 3rd, **The desires are more extravagant**, and there is less thrifty prudence. Here is an example of how it ought to be; and this, too, is taken from an actual case.

2. Tom and Mary White have five young children. Tom is a carpenter earning 30s. per week. Mary was housemaid in a good family till they were mar-

ried ; she had saved a little money, and had a good supply of excellent clothes. Tom was steady and sensible. He did not marry till he had paid for the furniture in his home, and had a few pounds besides to add to Mary's.

3. Once or twice, when work has been slack, they have been obliged to use a little of their savings ; but as they keep adding to them when work is plentiful, the sum total does not get less.

4. Mary has given me this account of how her money goes :—

	s.	d.
Rent and taxes.....	6	6
Meat.....	6	0
Coals and wood.....	2	0
Vegetables.....	1	6
Butter and milk.....	2	0
Bread.....	3	6
Groceries.....	3	0
Tom's pocket-money....	2	0
Sundries.....	1	0
P.-O. Savings-bank.....	2	0
Schooling.....	0	6
	<u>30</u>	<u>0</u>

The groceries are generally—

	s.	d.
2 lbs. sugar.....	0	7
$\frac{1}{2}$ lb. tea.....	0	9
$\frac{1}{2}$ lb. coffee.....	0	4 $\frac{1}{2}$
1 lb. rice.....	0	3
1 lb. candles.....	0	6
Soap.....	0	4
Soda, blacking, &c.....	0	2 $\frac{1}{2}$
	<u>3</u>	<u>0</u>

5. Mary does **needle-work** for her former mistress, and her eldest girl helps her. Her earnings do a great deal towards finding the clothing for them all ;

and when in busy times Tom works overtime, he increases the store for this purpose. Besides, the "pocket-money" is not always spent on "father," for he does not smoke or drink; it purchases many a pretty gift or birthday present for the little ones.

QUESTIONS.—1. What class of people command much higher wages now than formerly? Who really often suffer most hardships—town mechanics, or agricultural labourers? How is this to be accounted for? 2. What should all young people determine to do before they marry? What will be the great advantage of this? 3. When have they had to use a little of their savings? Why does the sum total not get less? 4. What things have town people to buy, with which country people supply themselves? How much did Tom and Mary save weekly? 5. What extras helped them? What benefit is it to the family when the father has no expensive habits?

22.—WAYS AND MEANS TO COMFORT.

1. WE have said several times, and we feel we cannot say it too often, that the very main-spring of all health and comfort in the household is the mother. If she understands *Domestic Economy*, or the management of the home and its belongings, she will work more wonders than a fairy. "The heart of her husband may safely trust in her: her children will rise up and call her blessed" (Prov. xxxi. 11, 28).

2. One of the things she will study most will be to get beforehand. Her expenditure must never quite come up to her income. "We must live within our means," will be her golden rule. She will set her clever head and hands to work, and she will manage (a fine word that!), and cut, and contrive, and mend, and turn, and piece, and darn, and never, never run into debt.

3. Then she will take such pains with her children that they will have as good manners, and as nice a way of speaking, as the children of high-born ladies. There will be a gentle grace and politeness in all they say and do. Even little matters, such as holding their knives and forks properly, will be attended to. As for their meals, they will be as nicely and delicately served as possible.

4. If it be possible, she will **bake her own bread**. She knows how much further home-made bread goes, as well as how much sweeter and more wholesome it generally is, than shop bread. Let us hope that the day may come when every working-man's home shall have its little brick oven for bread, and plenty of wood to heat it with.

5. The good mother will be an **early riser**. How can she manage that there shall be no "muddles" when her husband comes home, if she does not begin betimes? She was a proud wife whose husband said, "I don't know whether the mother has a washing day or scouring day. I suppose she has, because I always find everything clean; but I never see aught of it going on."

QUESTIONS.—1. Who is the mainspring of household comfort? 2. What is meant by "getting beforehand"? What will be her golden rule? What is the meaning of this rule? What will she have to do to carry out this rule? What will she never do? 3. How will her children show the good mother? Is there any reason why there should be better manners among the rich than among the poor? In what way will a good mother try to train her children? At what especial time will she be particular with them? Why is it a comfort to see good manners at meal times? 4. Why will a good manager seek to bake her own bread? Why cannot every one do this? 5. What good habit must be cultivated in good managers? What will this prevent? What ought every husband to be able to say of his wife's management?

23.—"KEEPERS AT HOME."

1. ABOVE all things, the good manager will know of a surety that her domestic economy cannot be practised unless she be a keeper at home. She will know that if she employ her time in a factory or a workroom of any kind, or even in the home of some other person, the health, the prosperity and the happiness of her own household, will be put in great danger, if not entirely sacrificed.

2. She may feel the pinching need of more funds to supply the various wants of her family, but if she has to be constantly away from home, all she gains in the way of money will be a decided loss in every other way. The food of her own household will be neglected, their clothing will be neglected, their cleanliness will be neglected; and then what will become of their health and their comfort, and how will she be able to control the expenditure?

3. The chances, too, are that for every shilling she earns she will have to pay two to make up for the waste and destruction which will go on in her absence. And, indeed, nothing will ever make up for the loss of her influence and management. Work she may, and work she will, as far as her many duties will allow her; but whatever she undertakes, she will see that it is work which may be done at home.

4. Numbers of children die annually for the want of a mother's care. In such cases the children are deprived of that care because "their mother goes out to work." Numbers more grow up crippled or

weakened in body and perverted in mind, for the want of motherly supervision and restraint. Surely in these cases the little extra money is dearly earned!

5. Some women take in needlework and washing at their own houses. These are hard works, though no harder than when the same things are done abroad. But the good home manager will feel,—better hard work at home, than easy work and absence from home.

6. I put my girl to mind the house
While I should earn a shilling ;
She set herself to clear and clean,
For she was quick and willing.
She smashed a pane and cracked a jar,
And singed my bran new broom.
" Ah me ! " I said, " 'twere better far
That I should stay at home."

I put my girl to mind the house
While I should earn a crown ;
My girl, though not a careless child,
Dropped the poor infant down.
Oh, long I watched it, night and day,
Hearing its piteous moan ;
And when it died my sad heart said,
" Would I had stayed at home."

I left my girl to mind the house
That I might earn a pound ;
Lucy grew tired of quiet and gloom,
So she went wandering round.
The things she saw, the ill she learned,
I see in deed, look, tone ;
Gold won't root out the evil sown—
" Would I had stayed at home."

QUESTIONS.—1. What are sacrificed when the home manager employs her time from home? 2. In what way may she gain? In what ways will she lose? 3. How may she lose, even in money? 4. How does a mother's working-out often affect children? 5. What kinds of work may be taken in at home? 6. Repeat the verses.

24.—“OUT OF DEBT, OUT OF DANGER.”

1. THE good manager will never run into debt. What she cannot pay for she will do without. She will know exactly the sum she has to spend. It may be less this week than it was last, from slack work, short hours, or some other cause. Never mind, she will make it do. She will think over it, plan it out, and manage with it. She may be obliged to do with a little less of everything, and to go without some things altogether; but whatever she must have, she will go for it with the ready money in her hand.

2. She knows that a buyer who goes with the cash in hand can always command better markets than those who seek credit. She is more independent, and can deal where she likes. Honest tradesmen now-a-days have printed on their bills “5 per cent. charged when credit is given;” and whether that is printed or not, they are pretty sure to charge dearer for all the things for which they are not paid ready money.

3. But there may be times, alas! when this sorrow of sorrows may come upon her without her seeking. In spite of all her good management, sickness, loss of work, or one of those dreadful “strikes,” may come, and her little store of savings will begin to dwindle away. What is to be done then?

4. A good woman—a real home queen—will always have friends. She will be well known to the minister of her church, and to her children’s

teachers ; for hers is a light which cannot be hidden under a bushel. In her extremity they will come forward with their advice and assistance ; which she will gratefully accept. She will never pauperise herself and her children by begging and expecting : her faith in their own honest uprightness and the wealth of their own right hands will give her too much self-respect for that ; but she will be none the less grateful for help in real need.

5. When a certain amount forms the income, and the value of every penny is weighed over and over again, there will not be much need of keeping accounts ; and yet the good home manager will not neglect this duty also. More for the sake of her husband and children, and perhaps as a guide to herself at some future time, she will put down each day's expenditure and each day's receipts. It will be a satisfaction to herself, as well as to her husband, to see precisely "**where the money has gone.**" By comparing week with week and month with month, she will be able to check little irregularities and extravagances. Besides, prices of articles alter,—go up at one time, go down at another ; and she must distribute the money she has to spend, according to the state of the market. If for no other purpose, the details will be entered regularly in the little **housekeeping book**, just to show "**how I managed before.**"

QUESTIONS.—1. How will a good manager go to work to make "both ends meet" ? What may be her privations ? What will be her comfort ? 2. Why will she never go without the money to pay for her purchases ? What are tradespeople compelled to do who give credit ? Who is the loser in the transaction ? 3. What troubles may throw even

the best managers behind? 4. Who will help them? Why will she not beg for help? What is a poor man and woman's greatest wealth? 5. Why is there not much need of keeping accounts in a cottage-home? What advantage will it be to do so?

25.—THE RESOURCES OF BAD MANAGERS.

1. It is wonderful how complicated is the machinery which bad managers employ to enable them to get on; and after all is done, what a ruined piece of workmanship is turned out,—ruined health and ruined homes.

2. The bad manager employs the **chandler's shop**,—a little shop kept by people who sell everything, and who do not at all object to give you credit too. In villages and poor neighbourhoods, where other shops are distant, they are often a convenience; but to deal at them regularly is an evil.

3. But why should there be evil in them? The proprietors may be honest and industrious. Surely it seems hard to deprive them of this way of getting a living.

4. The reason is, that the owners have rarely the means to buy at the best markets; and for this, and because their trade is small, they must sell dear. One family may derive a benefit from them, but many families suffer. Tea, soap, and candles will be at least one penny per pound (some things will be as much as sixpence per pound) dearer than those sold at larger shops. Instead of laying in a store of useful necessities bought at the best markets, the bad manager purchases by the quarter-ounce and the pennyworth as she needs them.

5. She must go a-borrowing. Washing-tubs, a little tea, a taste of butter, a pair of bellows,—anything her neighbour possesses,—she has no shame in asking “the loan of.”

6. Worst of all is the pawnbroker's shop, where, on the security of her own or her husband's clothes, or some article of household use, she will raise a shilling or two; for which she has to pay interest. For every shilling lent, she must pay threepence; for every pound, five shillings! How can anything but ruin come of such dealings?

7. She will deal with a tally-man. Travelling packmen, carrying drapers' goods, will come round and open their tempting pack. This dress-piece or that shawl is “so cheap” and “so handsome!” And then vanity and folly have their way, and she takes the coveted article, and agrees to pay one shilling or one-and-sixpence per week to him. Of course the man must charge high,—how else is he to be paid for his journey and his trouble? And sometimes these purchases are kept secret for a time; and when they are discovered, what trouble there is! One in debt is always one in difficulty; but “out of debt” is always “out of danger.”

QUESTIONS.—1. What is the inevitable result of bad management? 2. Where will a bad manager purchase her goods? What sort of shops are these? When are they an occasional advantage? 3. Who get their living by keeping them? Whom do they benefit? 4. How do they injure any one? Why are they compelled to do this? 5. What bad habit shows thriftlessness? 6. What is the worst help the poor can seek? What rate of interest must be paid for a pound? Would rich people like to borrow at that rate? What must it do for the poor? 7. What is a tally-man? Why are so many women tempted to buy their goods? What evils arise out of these “bargains”?

26.—SAVING.

1. **EVERY ONE** who earns money ought to save money. Only those who have unlimited fortunes need take no trouble about the matter. There are many helps now-a-days to encourage the working-classes in saving and in forethought. Almost every parish has its **clothing and coal club** and its **penny bank**, where to every trifle put in a trifle more is added. Good managers gratefully avail themselves of all these helps.

2. Then there are the various **benefit societies** for working-men, which, for a certain sum put in monthly, undertake to supply their members with a regular weekly payment in case of sickness. There are, however, two bad features in these benefit societies: sometimes the treasurer decamps with the funds; and their meetings are generally held at the public-house, where a man is tempted to spend quite as much to his hurt as he saves to his benefit.

3. The failure of so many petty savings-banks induced Government to take up the matter. Working-men's savings, from one shilling upwards, are received at the **post-office savings-banks**, and interest of two and a half per cent. is added.

4. The post-office savings-bank has the advantages of being **secure and safe**—of **receiving small sums** at a time—and of being **always at hand**; for deposits can be made, or money drawn out, at any post-office in town or country.

5. A person who deposits in a post-office savings-bank only one **shilling per week** will, at the end of

thirty-two years, find his savings to be £150. Of this sum, nearly £70 will be the accumulated interest.

6. **Live within your means.** Whatever you earn, save something. Never mind what people say about love of money, and being miserly. Every one ought to be above becoming dependent on others. Money in the bank makes a man hold his head up and respect himself. He deserves such respect, too; for he belongs to those who deny themselves selfish pleasures and indulgences. The Psalmist was right when he said,—“So long as thou doest well unto thyself, men will speak good of thee” (Psalm xlix. 18—Prayer Book).

QUESTIONS.—1. What encouragements are offered to poor persons to save money? What advantages are derived from these helps? 2. What is a “benefit society”? What good do these societies undertake to do? What two great evils spoil the good? 3. Which is the safest savings-bank? Why is it safe? What induced the Government to take up the matter? 4. Why has the Post Office Savings-Bank advantage over all others? What rate of interest is allowed? 5. If a shilling a week be deposited for thirty-two years, what will the interest amount to? 6. What is honest independence? What is likely to make a man respect himself? Why ought a saving man to be respected? What did the Psalmist say about helping ourselves?

27.—FEMALE EMPLOYMENTS.

1. **THIS** little book has tried to set forth plainly the way in which girls may best perform what we called in the first page “*their own high mission.*” There is a great deal of talk now-a-days, both in public and in private, about “woman’s rights.” Remember, No one dare or can deprive woman of this

right—the holy and blessed right of making happy homes.

2. Surely it will be time enough for us to seek for other work when our own special sphere does not furnish us with sufficient occupation. What matters it to most of us whether we have any talent for public business, when so few of us have time to devote to it? Is there not ample employment for all the energies of the most energetic in our own sphere? When once our eyes are opened to the importance and greatness of our own work—and it is **the greatest work in the world**—we shall desire no position which may disturb or distract us.

3. You may tell me you are but children yet, and not able to take upon you such great responsibility. No; but you must see to it that you are preparing yourselves for the work, when the time comes. Are you doing all you can *now* as daughters and as sisters? Are you storing your minds with all such things useful and beautiful as will help you *then*? Are you training your hands to such clever cunning as you will require from them in those days, —skill in cookery, skill in needle-work, and skill in all home matters? *Now is your time*, while you are getting your education—look to it that you are educated in these things.

4. In a very little time you will, perhaps, have to “do something for yourselves”—“to earn your own living.” Not many years since, the occupations open to a young female were very few. She could go to service or do needle-work. Now she has a great number to choose from—domestic service, millinery

and dress-making, sewing-machining, copying, book-keeping, letter-sorting, telegraphing, book-binding, type-setting, serving in a shop, and working in a factory.

5. Each of these occupations has its advantages and its disadvantages. I cannot tell for which the special bent of your mind or talents may fit you ; but do not lose sight of your future work in making a choice.

6. (a) **Remember your health.** Choose no work that will injure that. You require to be well fed, well housed and clothed ; and you need shelter, protection, and friends. (b) **Do not let any wrong estimate of liberty and of being one's own mistress influence you.** If you are a gentle, modest, retiring girl, you will not crave the liberty which gives you the run of the streets at all times. You are young and inexperienced, and therefore you are not fit to be your own mistress. (c) **Be true to yourself ; true to your own heart, with its womanly loving-kindness ; true to your greatest charm—your feminine modesty.** (d) **Shun fastness as you would shun a serpent—fastness in dress, fastness in speech, and fastness in manner.**

7. I know not into whose hands this little book may fall ; but feel sure, as you read this page, that with all my heart I say to you individually : God help you, little sister ; for you have a great battle to fight, a great work to do !—God help you, else you will often feel weary and downcast ! Keep straight on—striving, and striving, and striving. No other work is so high and so holy as yours, no other in-

fluence so mighty and so lasting. You may make no noise in the world ; no one may hear of all you do. Never mind ; the work is yours. "There was a little city, and few men within it ; and there came a great king against it, and besieged it, and built great bulwarks against it. Now there was found in it a poor wise man, and he by his wisdom delivered the city ; yet no man remembered that same poor man." (Eccles. ix. 14, 15). Your reward, however, will surely come. Here is the sure promise of it : "Favour is deceitful, and beauty is vain ; but a woman that feareth the Lord, she shall be praised. Give her of the fruit of her hands ; and let her own works praise her in the gates." (Prov. xxxi. 30, 31).

8. Your home is now, and always will be, like the little city in which few were found : round about every inmate will the enemy raise his mighty bulwarks. Study by your wisdom, your love, your purity, your unselfish domestic economy, to deliver each one her city, although no one may remember you.

APPENDIX.

THE TEACHING OF COOKERY FOR THE POOR AND INVALIDS.

[The following interesting account (by Mr. J. C. Buckmaster) of a Saturday Cookery School in Soho, London, shows how willing hearts and ready hands may make small means go a long way in helping the poor and comforting the sick.]

THE school commenced on Saturday, the 23rd of January 1875, and has continued every succeeding Saturday, working from ten till four. On the evening of the day of my visit, prizes, consisting of cookery books and utensils, were given to the successful pupils. The refreshments provided on the occasion consisted of six varieties of cakes, sausage rolls, jellies, blancmanges, and pressed meat, which were made by the girls in the school. The instruction has been given by one of the teachers from the National Training School for Cookery. It begins with marketing. Some of the girls, accompanied by the teacher, purchase in Newport Market, or more frequently from the costermongers, what is required for the day's cooking, except such things as must be purchased at shops. There is the usual bargaining and criticism, so important in the choice and purchase of food; and the cost of everything is entered in a book. I regard this as a most valuable part of the school work. The following are copied from the book:—

"Went to market at 45 past 9, Feb. 13th, 1875.—A rabbit, 1s. 6d.; sheep's head, 10d.; sheep's heart, 5d.; liver, 9d.; half a pig's head, 1s.; bacon, 10½d.; odd pieces of meat, 4½d.; vegetables, 8d.; rice, 1½d.; currants, 1½d.; sugar, 3½d.; spice, 0½d.; haricot beans (a quart), 7d.; potatoes, 6d.; bread, 6d.; milk, 2½d.: total cost, 8s. 11½d." On this date, twenty persons dined.

"Went to market at 30 past 9, February 20th, 1875.—Two lbs. of tripe at 8d., 1s. 4d.; dripping, 4d.; two sheep's hearts, 10d.; giblets for pie, 6d.; onions, 4d.; pork for soup, 3d.; flour, 2d.; currants, 1d.; potatoes, 8d.; carrots, sage, and leeks, 3d.: total cost, 4s. 6d." On this date, from these purchases, eighteen persons dined.

"Went to market at 10 o'clock, Saturday, March 27, 1875.—6 lbs. of Australian meat, 3s.; $\frac{1}{2}$ lb. of butter, 8d.; eggs, 1s.; milk, 4d.; potatoes, 6d.; parsley, 1d.; onions, 3d.; sugar, 2d.; currants and spice, 3d.; plums, 2d.; mustard, 0 $\frac{1}{2}$ d.; salt, 2 $\frac{1}{2}$ d.; flour, 2 $\frac{1}{2}$ d.; bread, 2 $\frac{1}{2}$ d.: total cost, 7s. 6d." On this date, twenty-one persons dined.

On the return of the girls from marketing, the proposed methods of cooking are briefly explained, and each girl works from a written recipe. The teacher superintends the work, pointing out any defects or errors of manipulation, and speaking when opportunity offers on the importance of forethought, cleanliness, and orderly management.

By one or two o'clock, according to the length of time occupied in cooking, the girls, with their teacher, the visitors, and the vicar and curates, sit down to dinner in the kitchen. On the occasion of my visit, the dinner consisted of a soup prepared with potatoes, leeks, sago, milk, and two quarts of water; stuffed mackerel; liver and bacon; Irish stew; macaroni pudding; and gooseberry pudding. In many families one of these dishes would have constituted a meal. After dinner, four girls in turn are appointed under the direction of the teacher, or one of the elder girls, to wash up and put everything in its place. In looking over the register of things cooked since the opening of the school, I find among others the following: sheep's head soup, suet dumplings and puddings, vegetable and meat soups, milk soups, stews of small pieces of meat, haricot beans, lentils, macaroni, rice, bullock's head, bullock's heart, bullock's kidney, giblet pie, cow heel, dripping puddings, making bread, and five methods of cooking tripe. The sick or invalid cookery included the preparation of arrowroot, tapioca, mutton broth, beef tea, rice water, apple water, blanchmanges, and jellies.

The school consists on an average of fifteen girls; which is rather more than can be conveniently accommodated in two kitchens having a total area of only 365 square feet, and not specially adapted for the purpose. Some of the girls are pupil-teachers, but the majority are elder girls of two elementary schools in the neighbourhood. The average age is twelve years and eight months; and they pay 3d. per lesson, which includes their dinner. This payment, which only amounts to 3s. 6d. weekly, is obviously insufficient for the maintenance of such a school; and yet it was found that a higher payment at the beginning would have been exclusive. The average weekly cost of the school is 19s. 6d., leaving 16s. to be provided from other sources in one of the poorest neighbourhoods of London. A diary is kept in which the daily work of each girl is entered.

Although the girls attending this school are children of the better order of working men, they were unable to do the simplest thing in cookery, nor had they any idea of the cost of various articles of food, or the proper use of common cookery utensils; but as soon as the school

opened they readily gave up a great part of the only holiday they have in the week, and began work cheerfully. They have frequently expressed themselves thankful both to the vicar and the teachers for the opportunity which has been afforded for acquiring a knowledge of simple economical cookery.

I was anxious to learn what effect this teaching had on elementary education. It would be premature to speak with positiveness on this point, but I was struck with the quick, intelligent answers, of the girls to questions which I proposed during their work. Instruction in the art of cookery is analogous to a lesson on experimental physics; with what has to be thought about and understood there is always associated something which has to be done; and under an intelligent teacher, the reason of the thing is ever present in the mind of the pupil. Every lesson was followed by a written examination; and the papers were corrected by the teacher and Mr. Rawnsley, of Baliol College.

It was on the result of these examinations that the prizes to which I have referred were given. These examinations, apart from the cooking, are a useful part of a girl's education in writing, spelling, grammar, and composition.

I am informed that the girls who passed the best examination in cookery, also passed the best examination before H. M. Inspector.

Every Saturday, after dinner, Mr. Rawnsley reads out each recipe for the following week, the girls writing it down from dictation in a book provided for that purpose. After the recipe the price of each article, as nearly as possible, is given; which is also written down, and the little addition sums are worked at once. In this way the cooking is made to help as much as possible the elementary education. The books in which these things are written are taken home; and this has greatly increased the interest of the parents in the school.

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Edward had been brought up in Normandy, and was more a Frenchman than an Englishman. He filled his court with Normans, to the annoyance of the English. Godwin took the lead in opposing the strangers.

1051. Godwin is forced to seek shelter in Flanders.

The burghers of Dover had attacked Eustace, Count of Boulogne, who had married the King's sister. The King ordered Godwin to punish them. Godwin refused, and took the field; but he shrank from the struggle, and withdrew beyond seas.

1052. William, Duke of Normandy, visits England.

1052. Godwin is recalled and restored; and the Norman favourites are outlawed and flee. Godwin soon dies, and is succeeded by his son Harold.

Harold virtually ruled England for the next twelve years. He gained fame by his victories over the Welsh; drove his rivals, the Earls of Northumberland and Mercia, into exile; and centred all power in himself.

Feudal Monarchy.

V.—THE NORMAN CONQUEST.

1060. Harold is wrecked on the coast of Normandy; Duke William seizes him, but releases him on his swearing, over sacred relics, to support William's claim to the English crown.

1066. Edward dies, and Harold is elected his successor.

HAROLD II. 1066 A.D.

Son of Earl Godwin.

1066. William of Normandy prepares to claim the throne.

1066. Harold Hardrada of Norway, and Tostig, King Harold's brother, invade the north of England, and are defeated (September 25) by Harold at **STAMFORD BRIDGE** (Yorkshire).

Tostig was the Earl of Northumbria who had been exiled in the previous reign. He now returned to claim his earldom.

1066. William lands at Pevensey in Sussex (September 28). Harold marches southward, and occupies the heights of Senlac, near

